PB85-127850

Water Resources Data for South Dakota, Water Year 1983

(U.S.) Geological Survey, Huron, SD

Sep 84

U.S. Department of Commerce
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DEPARTMENT OF THE INTERIOR
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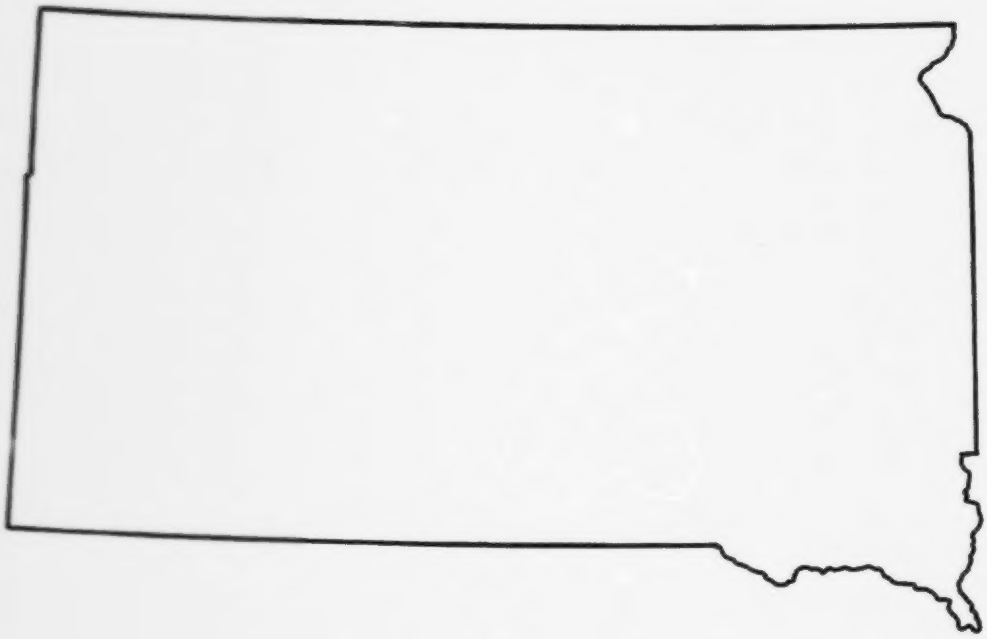
PB85-127850

Water Resources Data South Dakota
Water Year 1983



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-83-1
Prepared in cooperation with the State of South Dakota
and with other agencies

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SPRINGFIELD, VA. 22161

CALENDAR FOR WATER YEAR 1983

1982

OCTOBER

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1983

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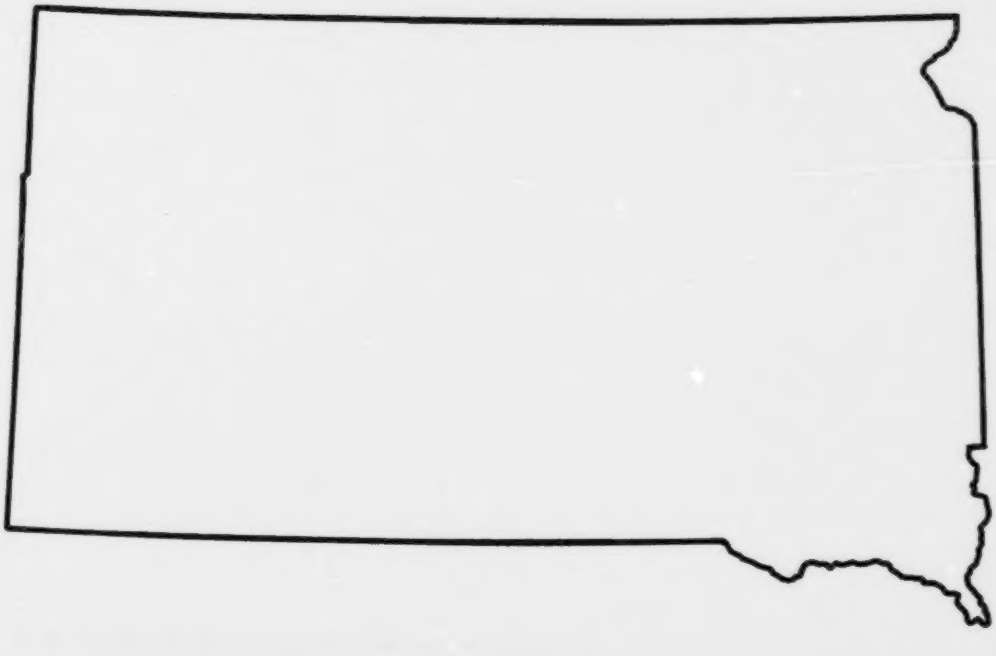
U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

Water Resources Data South Dakota

Water Year 1983

by E.B. Hoffman, N.F. Leibbrand, D.R. Winter, and R.D. Benson



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-83-1
Prepared in cooperation with the State of South Dakota
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

WILLIAM P. CLARK, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in South Dakota write to
District Chief, Water Resources Division
U.S. Geological Survey
Room 317, Federal Building
200 4th St. S.W.
Huron, South Dakota 57350

1984

PREFACE

This report is one of a series issued by state. General direction for the series is by Phillip Cohen, Chief Hydrologist, U.S. Geological Survey, William B. Mann, Acting Assistant Chief Hydrologist for Scientific Publications and Data Management, and Alfred Clebsch, Jr., Regional Hydrologist, Central Region.

This report was prepared by personnel of the South Dakota District of the Water Resources Division of the U.S. Geological Survey under the supervision of Richard E. Fidler, District Chief, and John R. Little, Chief, Hydrologic Data Collection and Analysis Section. Other South Dakota District personnel who contributed significantly to the collecting, processing and tabulating the data, and typing the manuscript were: Darwin W. Heyd, Marvin D. Stevens, Bruce E. Baker, Herbert J. Bandelman, Roman J. Bowar, Michael J. Burr, Richard M. Crowfoot, Ella M. Decker, Mark E. Freese, Dan G. Hern, Terry K. Lockner, Debra K. Matthews, Darwin L. Rahder, Craig E. Solberg, Verlyn J. Wipf, and Gerald R. Wisnieski. It was prepared in cooperation with the State of South Dakota and with other agencies.

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Water Resources Data for the 1983 water year for South Dakota consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels in wells. This report contains discharge records for 107 gaging stations, stage and contents for 13 lakes and reservoirs; water quality for 26 gaging stations; and water levels for 7 observation wells. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements and analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in South Dakota.

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WATER RESOURCES DATA FOR SOUTH DAKOTA, 1983

INTRODUCTION

Water resources data for the 1983 water year for South Dakota consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground water. This report contains discharge records for 107 gaging stations; stage and contents for 13 lakes and reservoirs; water quality for 26 gaging stations; and water levels for 7 observation wells. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in South Dakota.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

For water years 1961 through 1970, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1970 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1971 water year, water data for streamflow, water quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report SD-82-1." Water-Data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

COOPERATION

The U.S. Geological Survey and organizations of the State of South Dakota have had cooperative agreements for the systematic collection of surface-water records since 1914, for ground-water levels since 1935, and for water-quality records since 1947. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Department of Water and Natural Resources, W. R. Neufeld, secretary.

East Dakota Conservancy Sub-District, J. L. Siegel, manager-engineer.

Black Hills Conservancy Sub-District, Ed Glassgow, manager-treasurer.

Lower James Conservancy Sub-District, Don Barber, manager.

City of Watertown, J. O. Babcock, city engineer.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army; the Bureau of Indian Affairs, U.S. Department of Interior; the Bureau of Reclamation, U.S. Department of Interior; the Fish and Wildlife Service, U.S. Department of Interior; the Environmental Protection Agency; and the Missouri River basin development program for gaging and water-quality stations.

Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

by Rick D. Benson

The trend of greater than normal precipitation throughout much of South Dakota during the 1982 water year continued through the first quarter of the 1983 water year. During the first quarter, precipitation ranged from 167 percent of normal in the Black Hills to 317 percent of normal in the southeast. Except for the Black Hills, all areas of the State had greater than normal precipitation for the 1983 water year. The Black Hills had greater than normal precipitation during the first quarter of the water year and less than normal precipitation during the remainder of the water year, ending at 1.59 inches less than normal. The southeast part of the State had greater than normal precipitation through the first three quarters of the water year and less than normal precipitation during the last quarter, ending the year at 6.99 inches greater than normal--the most for the State.

Precipitation data from published reports of the National Weather Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, for the nine divisions in South Dakota are shown in table 1. The cumulative precipitation and cumulative departures from normal are shown for the end of each quarter.

Table 1.--Cumulative precipitation and departures from normal[1], in inches

National Weather Service Division[2]	October - December		October - March		October - June		1983 Water year October - September	
	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal
Northwest	5.17	3.49	6.66	3.51	11.81	1.19	16.85	1.57
North Central	5.20	3.20	7.35	3.66	13.73	1.95	21.91	4.58
Northeast	4.99	2.51	7.85	3.40	13.54	.47	22.79	3.19
Black Hills	4.43	1.76	6.76	1.32	13.96	-1.32	19.71	-1.59
Southwest	4.16	2.40	5.74	2.16	13.20	1.56	17.44	.82
Central	4.79	2.81	6.55	2.80	14.79	3.31	19.94	3.04
East Central	6.32	3.54	9.83	4.79	16.99	3.11	24.25	3.35
South Central	6.23	3.90	8.75	4.15	19.51	5.77	24.69	4.54
Southeast	9.35	6.40	13.26	7.70	24.96	10.03	30.06	6.99

1/ Based on period from 1951 to 1980.
2/ Shown in figure 1.

Surface Water

The five streamflow-gaging stations shown in figure 1 have drainage areas within South Dakota representing about 45 percent of the total area of the State. Streamflow during water year 1983 was significantly greater than normal for four of the five stations. The flow of Castle Creek above Deerfield Reservoir near Hill City and of the White River near Oacoma was about 150 percent of normal, the James River near Scotland was about 190 percent of normal, and the Big Sioux River at Akron, Iowa, was about 450 percent of normal. The flow of the Moreau River near Whitehorse was slightly less than 60 percent of normal.

The graphs of discharge in figure 1 generally follow the precipitation trends shown in table 1. The eastern divisions received greater than normal precipitation during the water year (table 1), and the discharge of the Big Sioux River at Akron and the James River at Scotland (fig. 1) was greater than normal throughout the 1983 water year. Precipitation in the Central and South Central divisions was less than normal during the last one-fourth of the 1983 water year, ending the year at about 120 percent of normal. The discharge of the White River near Oacoma was greater than normal during the first 5 months of the water year and less than normal during most of the remaining months of the water year. Precipitation in the Northwest division was about 300 percent of normal during the first quarter, but at or less than normal for the remainder of the 1983 water year. The streamflow of the Moreau River near Whitehorse was greater than normal for the first 5 months of the water year and less than normal for the next 6 months.

Castle Creek, a mountain stream in the Black Hills, derives most of its flow from the Madison aquifer. The surface of most of the basin is porous limestone, which accepts water readily and recharges the aquifer. This results in Castle Creek's small range in discharge and subdued response to precipitation as reflected by the hydrograph in figure 1.

Maximum and minimum discharges for the 1983 water year are compared to long-term maximums and minimums in tables 2 and 3.

Combined storage in the four Missouri River main-stem reservoirs (Lakes Oahe, Sharpe, Francis Case, and Lewis and Clark) was 26,214,000 acre-feet at the end of the water year, an increase of 1,091,000 acre-feet from the same date a year ago.

Water Quality

Chemical quality of surface water in South Dakota varies considerably across the State. Mean monthly dissolved-solids concentrations for the period of record are compared with samples collected during the 1983 water year in figure 2. Of the 12 stations in figure 2, all are National stream-quality accounting network (NASQAN) stations except for 2 (Castle Creek above Deerfield Reservoir near Hill City and Little Vermillion River near Salem), which are hydrologic bench-mark stations. Dissolved-solids concentrations ranged from as little as 227 mg/L at the Castle Creek station to as much as 2,160 mg/L at the Moreau River station.

To determine whether significant differences in dissolved-solids concentrations occurred between the 1983 water year and the period of record, a statistical test called the t-test was used. Results of the t-tests for the 12 stations, shown in table 4, indicate that no statistically significant differences in the mean dissolved-solids concentrations occurred at 11 of the 12 stations during water year 1983. Only the Belle Fourche River near Elm Springs had a significantly different mean dissolved-solids concentration in 1983, and it was substantially less than the long-term mean concentration. Precipitation in the Northwest division was 210 percent of normal and the streamflow of the Belle Fourche River near Elm Springs also was about 210 percent of normal during the first one-half of the water year. The dissolved-solids concentration of the river was substantially less than normal during this high-flow period.

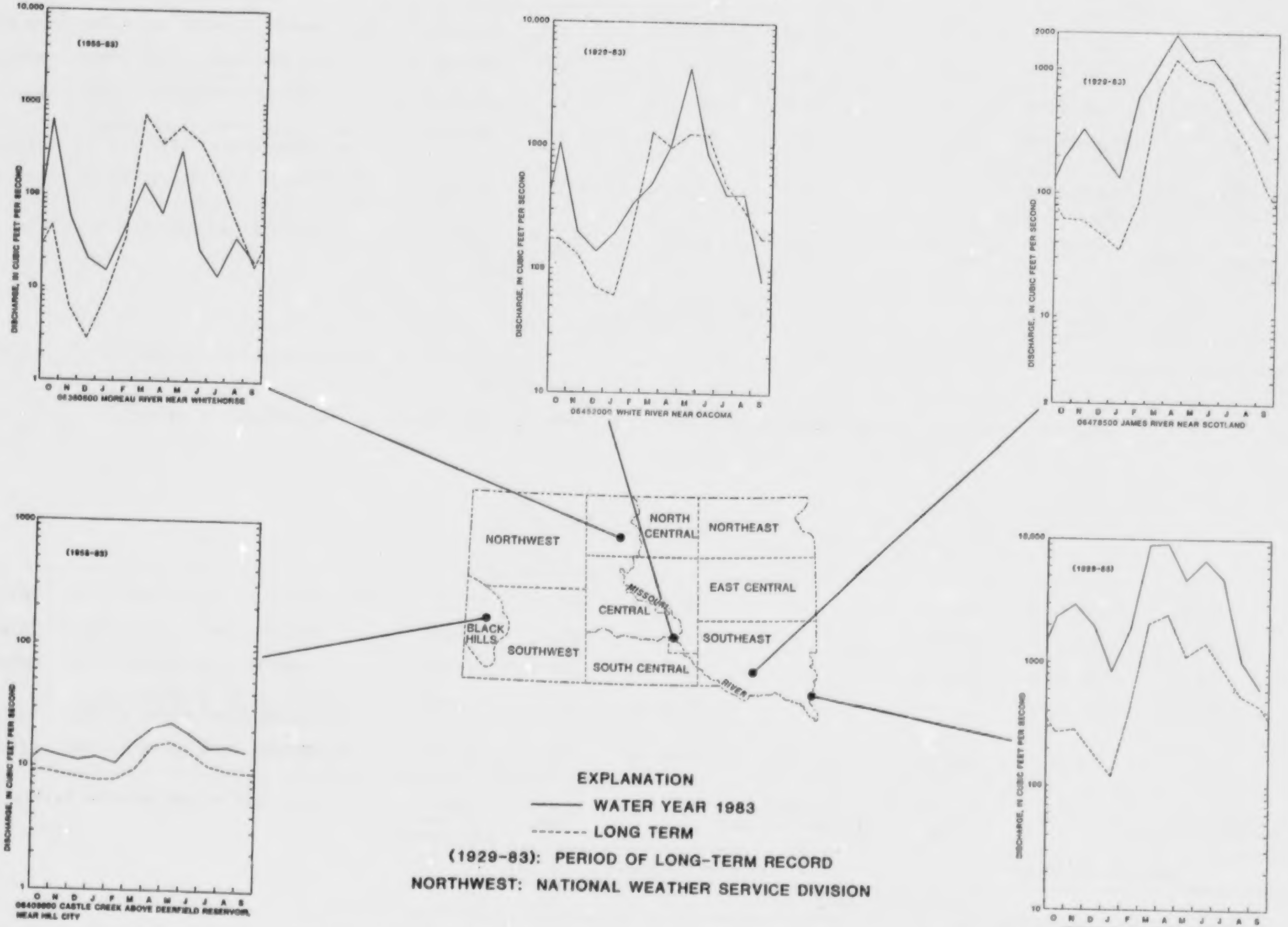


Figure 1.--Comparison of 1983 monthly mean to long-term monthly mean discharges.

Table 2.--Comparison of current-year maximum discharge with maximum for long-term periods

[ft³/s, cubic feet per second]

Gaging-station number and name		Long-term period used	Peak discharges					
			1983 Water year			Long-term period		
			Peak (ft^3/s)	Date	Return interval (years)	Peak (ft^3/s)	Date	Return interval (years)
06360500	Moreau River near Whitehorse	1955-83	3,740	10-13-82	<2	27,700	5-24-82	24
06409000	Castle Creek above Deerfield Reservoir, near Hill City	1948-83	87	8- 3-83	3	1,120	5-22-52	>100
06452000	White River near Oacoma	1929-83	20,900	5- 4-83	7	51,900	3-30-52	>100
06478500	James River near Scotland	1929-83	3,510	6-24-83	4	15,200	4- 3-62	>100
06485500	Big Sioux River at Akron, Iowa	1929-83	34,500	6-22-83	12	80,800	4- 9-69	>100

Table 3.--Comparison of current-year minimum daily discharge with minimum for long-term periods

[ft³/s, cubic feet per second]

Gaging-station number and name		Long-term period used	Minimum discharges					
			1983 Water year[1]			Long-term period		
			1-day (ft^3/s)	Date	Average 7-day (ft^3/s)	1-day (ft^3/s)	Date	7-day, 10-year return interval (ft^3/s)
06360500	Moreau River near Whitehorse	1955-83	3.6	9-30-82	4.2	0	many days	Not determined.
06409000	Castle Creek above Deerfield Reservoir, near Hill City	1948-83	5.6	10-10-82	8.5	2.0	several days	3.9
06452000	White River near Oacoma	1929-83	73	7-27-82	112	0	many days	3.5
06478500	James River near Scotland	1929-83	15	8-23-82	22	0	many days	1.5
06485500	Big Sioux River at Akron, Iowa	1929-83	237	8-23-82	269	4.0	1-17-77	18.8

[1] Low-flow water year is April 1 to March 31.

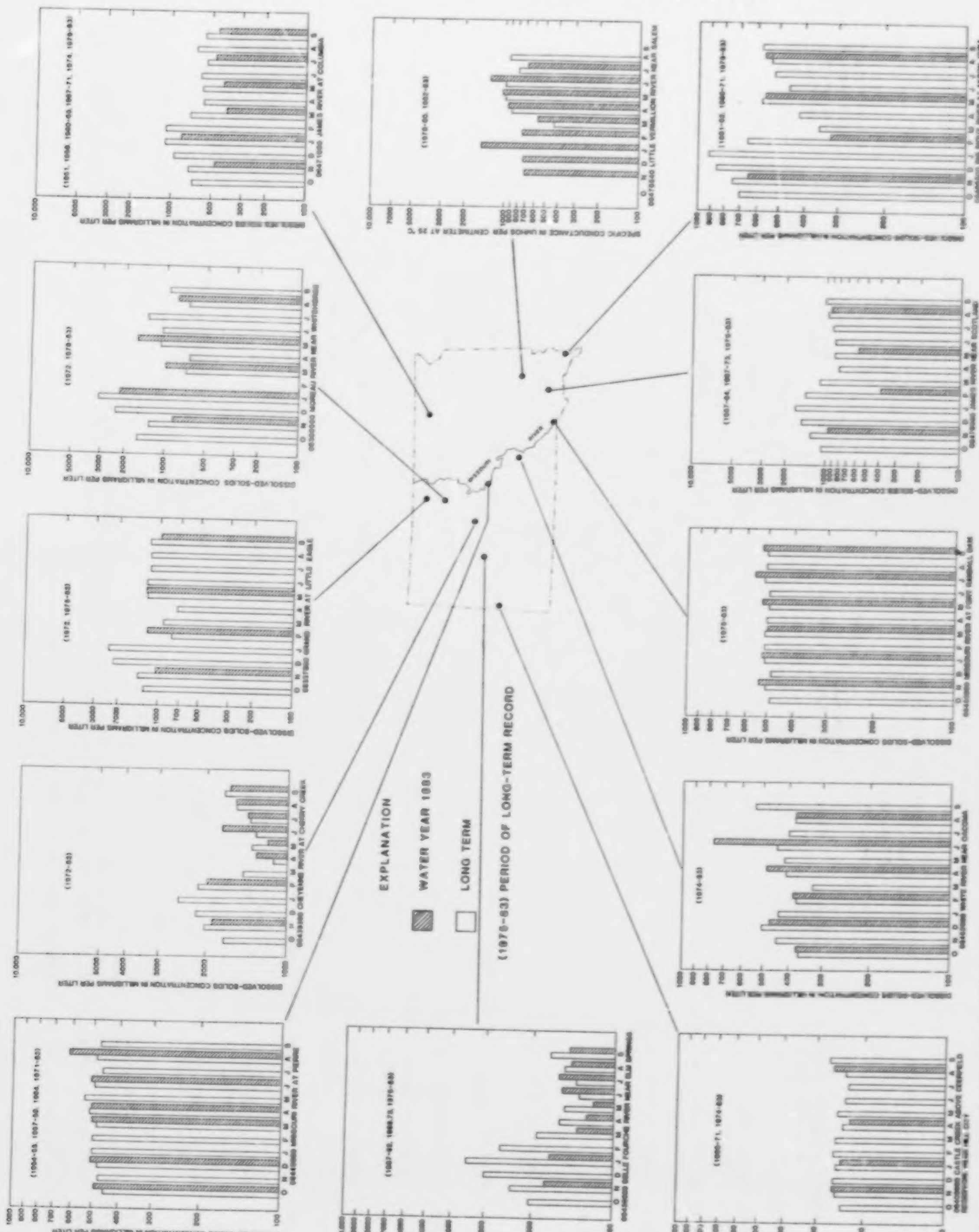


Figure 2.--Comparison of 1983 monthly dissolved-solids concentrations or specific conductance to long-term average monthly values.

Table 4.--Results of t-tests comparing mean dissolved-solids concentrations for the 1983 water year with means for the period of record at selected water-quality stations

Water-quality station number and name		Dissolved-solids concentration[1/]								
		1983 water year			Period of record					
		Number of values n_1	Mean $\bar{X}_1$	Standard deviation SD_1	Number of values n_2	Mean $\bar{X}_2$	Standard deviation SD_2	Period used	Prob $>$ $\lvert T \rvert$ [2/]	Significant difference between means
06357800	Grand River at Little Eagle	4	1,119	131	83	1,301	586	1972, 1975-83	[3/]0.07	No.
06360500	Moreau River near Whitehorse	5	1,292	579	32	1,266	806	1972, 1978-83	0.94	No.
06409000	Castle Creek above Deerfield Reservoir, near Hill City	4	249	17	161	249	30	1965-71, 1974-83	.95	No.
06438000	Belle Fourche River near Elm Springs	12	1,463	191	188	2,000	887	1957-62, 1969-73, 1975-83	< .05	Yes.
06439300	Cheyenne River at Cherry Creek	10	1,555	262	117	1,678	594	1972-83	.25	No.
06440000	Missouri River at Pierre	6	523	46	185	491	66	1954-55, 1957-58, 1964, 1971-83	.24	No.
06452000	White River near Oacoma	6	477	150	98	421	140	1974-83	.35	No.
06453000	Missouri River at Fort Randall Dam	6	529	20	93	503	42	1975-83	.14	No.
06471000	James River at Columbia	6	505	165	163	697	287	1951, 1958, 1960-65, 1967-71, 1974, 1979-83	.11	No.
06478500	James River near Scotland	4	712	276	261	1,117	475	1957-64, 1967-73, 1975-83	.09	No.
06478540	Little Vermillion River near Salem	16	[4/]807	[4/]420	31	[4/]773	[4/]390	1978-80, 1982-83	.78	No.
06485500	Big Sioux River at Akron, Iowa	4	524	142	136	605	225	1961-62, 1966-71, 1975-83	.48	No.

[1/] Milligrams per liter.

[2/] Alpha probability for "t" statistic.

[3/] If the null hypothesis ($\bar{X}_1 = \bar{X}_2$) is rejected, there is a 7-percent chance that this conclusion will be in error. Because only a 5-percent chance of error is acceptable, the null hypothesis is accepted. Similar reasoning can be used to evaluate the other stations.

[4/] Specific conductance in micromhos per centimeter at 25° Celsius.

A procedure called the Seasonal Kendall test was used to determine if the dissolved-solids concentrations at any of the stations were indicating a significant trend, either upward or downward, for the period of record. The analysis, summarized in table 5, indicated that there was no significant trend at any of the stations except the Missouri River at Pierre and the Missouri River at Fort Randall Dam. The Missouri River at Pierre indicated an upward trend in dissolved-solids concentration of about 2.8 mg/L per year and the Missouri River at Fort Randall Dam indicated an upward trend in dissolved-solids concentration of about 12.1 mg/L per year. This possibly may be the result of upstream development within the basin.

Table 5.--Results of the Seasonal Kendall trend analysis of dissolved-solids concentrations for selected water-quality stations

Water-quality station number and name		Number of observations	Tau[1]	p-level[2]	Significant trend
06357800	Grand River at Little Eagle	117	0.072	0.617	No.
06360500	Moreau River near Whitehorse	49	.135	.612	No.
06409000	Castle Creek above Deerfield Reservoir, near Hill City	254	-.105	.254	No.
06438000	Belle Fourche River near Elm Springs	266	-.144	.095	No.
06439300	Cheyenne River at Cherry Creek	162	.171	.160	No.
06440000	Missouri River at Pierre	239	.300	.002	Yes.
06452000	White River near Oacoma	115	.172	.198	No.
06453000	Missouri River at Fort Randall Dam	204	.563	.000	Yes.
06471000	James River at Columbia	68	-.284	.064	No.
06478500	James River near Scotland	365	-.035	.653	No.
06478540	Little Vermillion River near Salem[3]	43	.429	.279	No.
06485500	Big Sioux River at Akron, Iowa	138	.163	.106	No.

1/ A negative tau indicates a downward trend and a positive tau indicates an upward trend. Tau may only take on values between -1 and +1.

2/ Significance probability of the trend. A p-level (p) <0.05 indicates a significant trend.

3/ Trend analysis conducted on specific conductance rather than dissolved solids.

Ground Water

Water levels in wells, discharge of springs and wells, and water-quality data are key characteristics in monitoring ground-water trends; however, these hydrologic characteristics need to be integrated with other observations and ground-water-system studies in order to have the fullest meaning and usefulness. In South Dakota, the U.S. Geological Survey regularly monitors a number of observation wells. Other wells, which are known as project wells, are used for specific (generally short-term) studies and, although they are not part of the observation-well program, data obtained from them also are made available. The hydrographs in figure 3 are from seven of the wells in the network.

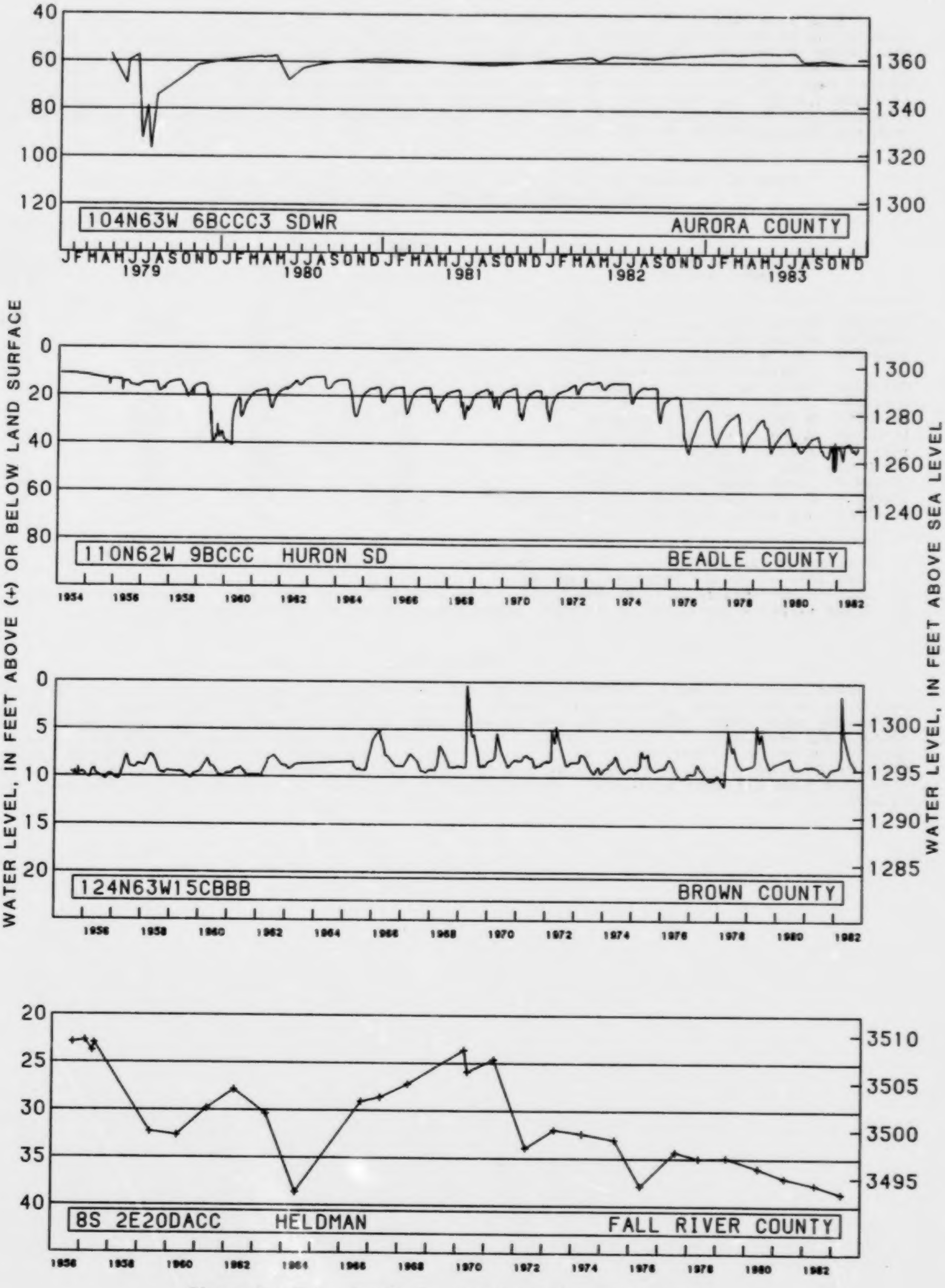


Figure 3.--Water levels from selected observation wells.

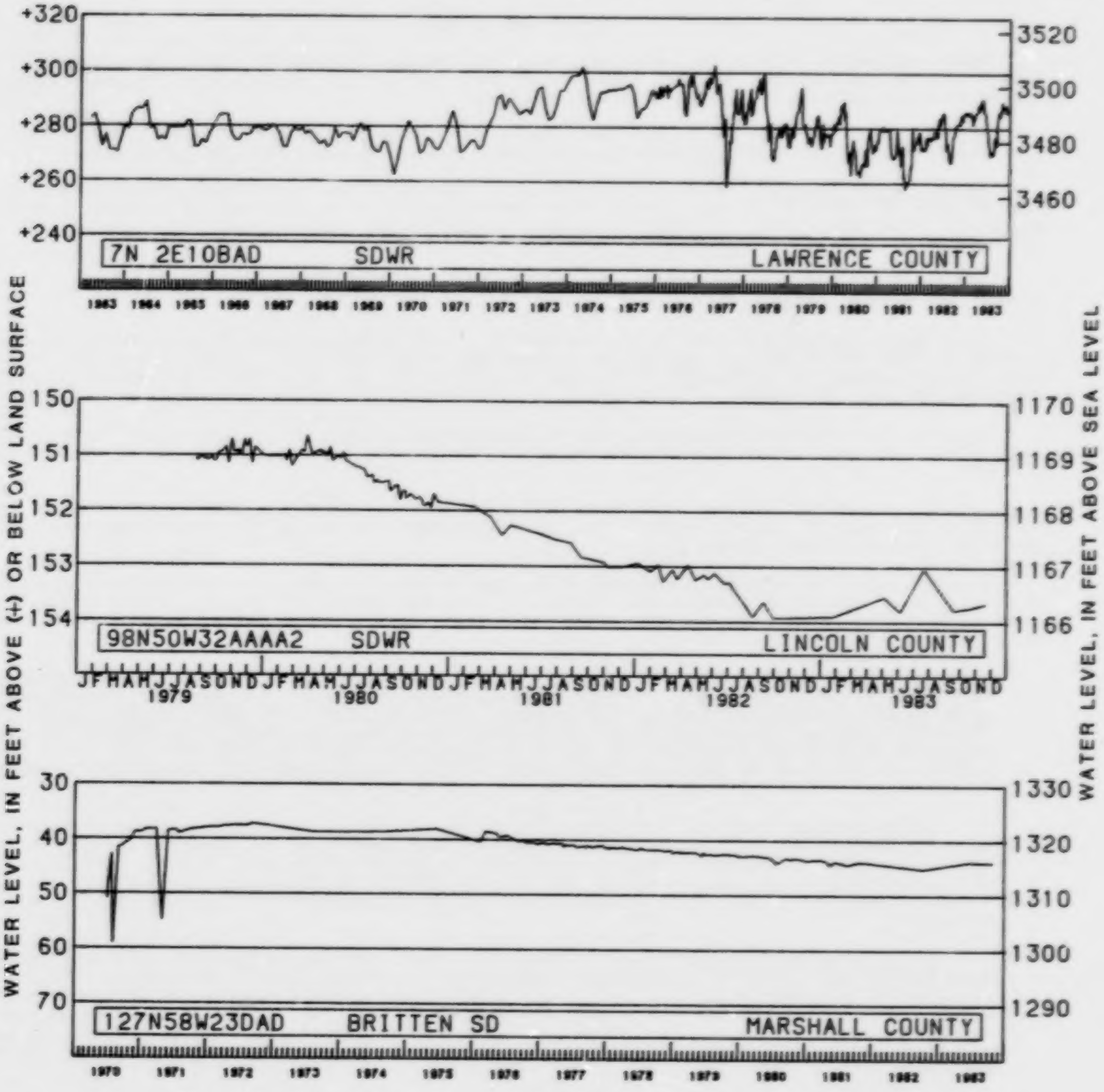


Figure 3.--Water levels from selected observation wells.--Continued

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting English units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is the primary energy donor in cellular life process. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the material in a representative water sample which passes through a 0.45 µm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determination of "dissolved" constituents are made on subsamples of the filtrate.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter code numbers are unique five-digit code numbers assigned to each parameter placed into storage. These codes are assigned by the Environmental Protection Agency and are also used to identify data exchanged among agencies.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024 - 0.004	Sedimentation.
Silt..........	.004 - .062	Sedimentation.
Sand..........	.062 - 2.	Sedimentation or sieve.
Gravel........	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth (1×10^{12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg $C/(m^2 \cdot time)$ for periphyton and macrophytes and mg $C/(m^3 \cdot time)$ for phytoplankton] are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg $O_2/(m^2 \cdot time)$ for periphyton and macrophytes and mg $O_2/(m^3 \cdot time)$ for phytoplankton] are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge time mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexageria
Species	Hexagenia limbata

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable refers to the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent percent in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Turbidity (NTU) is based on the comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension of Formazin polymer under the same conditions.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 06442500, which appears just to the left of the station name, includes the 2-digit part number "06" plus the 6-digit downstream order number "442500".

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 4 below.

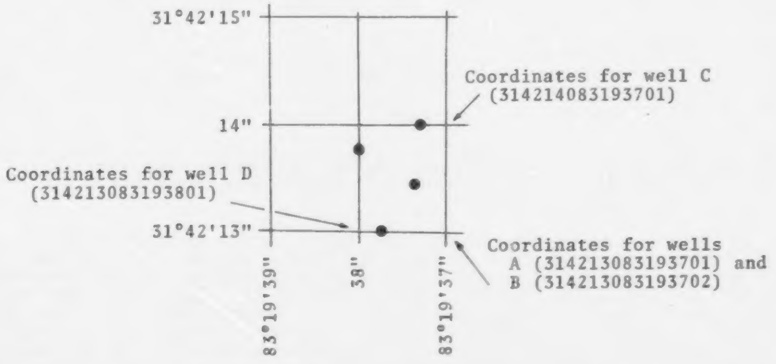


Figure 4. System for numbering wells and miscellaneous sites (latitude and longitude)

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 12.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of all discharge measurement sites in the State. Information on records available at specific sites can be obtained upon request.

Access to WATSTORE data

The National WAter Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's district offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small daily temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Revisions

If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer to update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of a 15-digit number that is based on latitude and longitude. See Figure 4.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either National Geodetic Vertical Datum of 1929 or land-surface datum (lsd). National Geodetic Vertical Datum of 1929 is explained in the Definition of Terms paragraph. Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above National Geodetic Vertical Datum of 1929 is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-seven manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett St., Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
3-A9. *Measurement of time of travel and dispersion in streams by dye tracing*, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.
3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.
5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.
5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.
5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages
8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

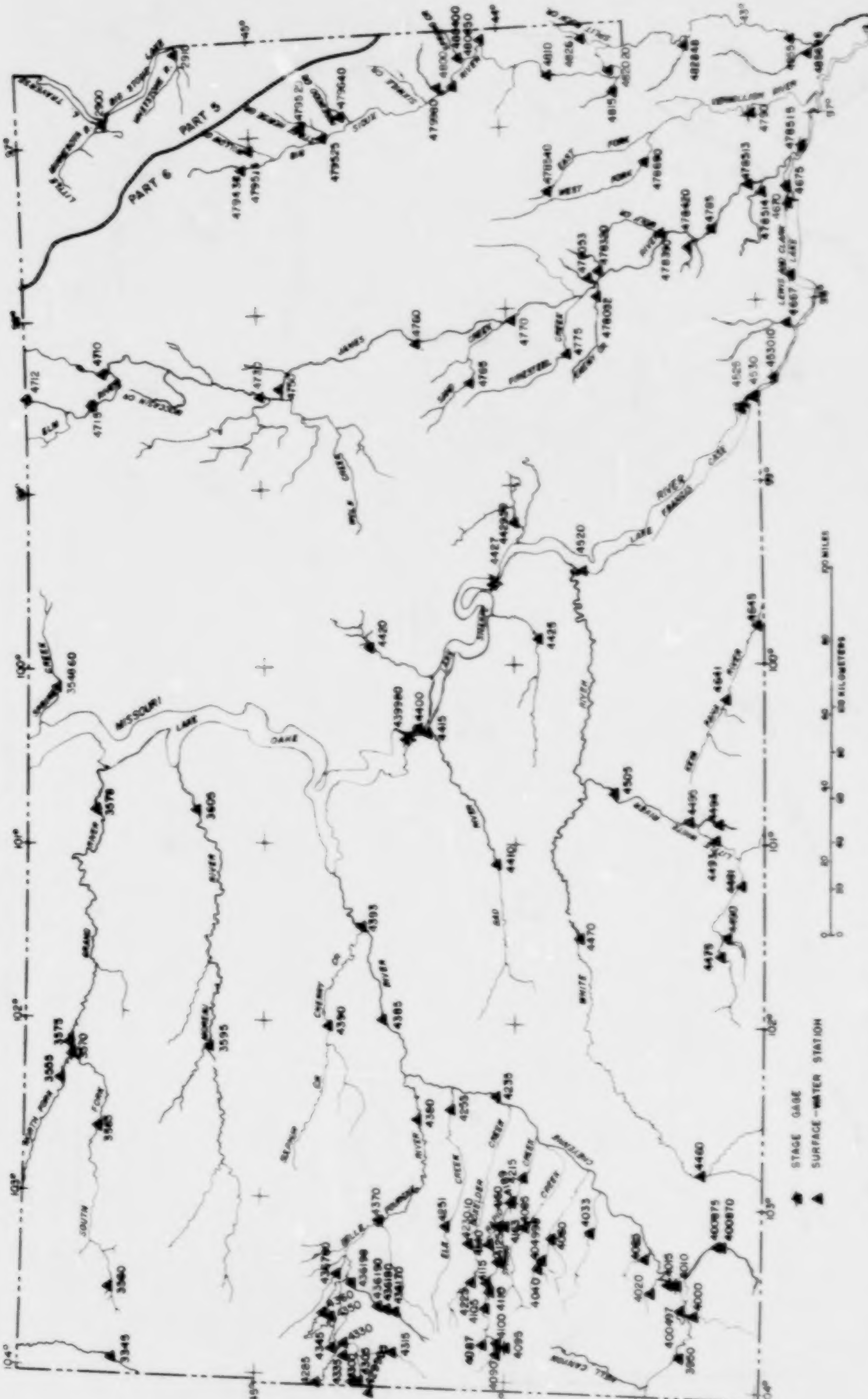

PART 5
PART 6
MISSOURI
LAKE
OAHE
JAMES
WHITE
RIVER
LAKE FRANCIS CASE
LEWIS AND CLARK LAKE
VERMILLION RIVER
BIG SIOUX
GRAND
MOREAU
CHEYENNE
BAD
KEYA PAHA
SOUTH FORK
WEST FORK
EAST FORK
104°
103°
102°
101°
100°
99°
98°
97°
96°
45°
44°
43°
STAGE GAGE
SURFACE-WATER STATION
0 20 40 60 80 100 MILES
0 20 40 60 80 100 KILOMETERS

Figure 5.--Map of South Dakota showing location of lake and stream gaging stations

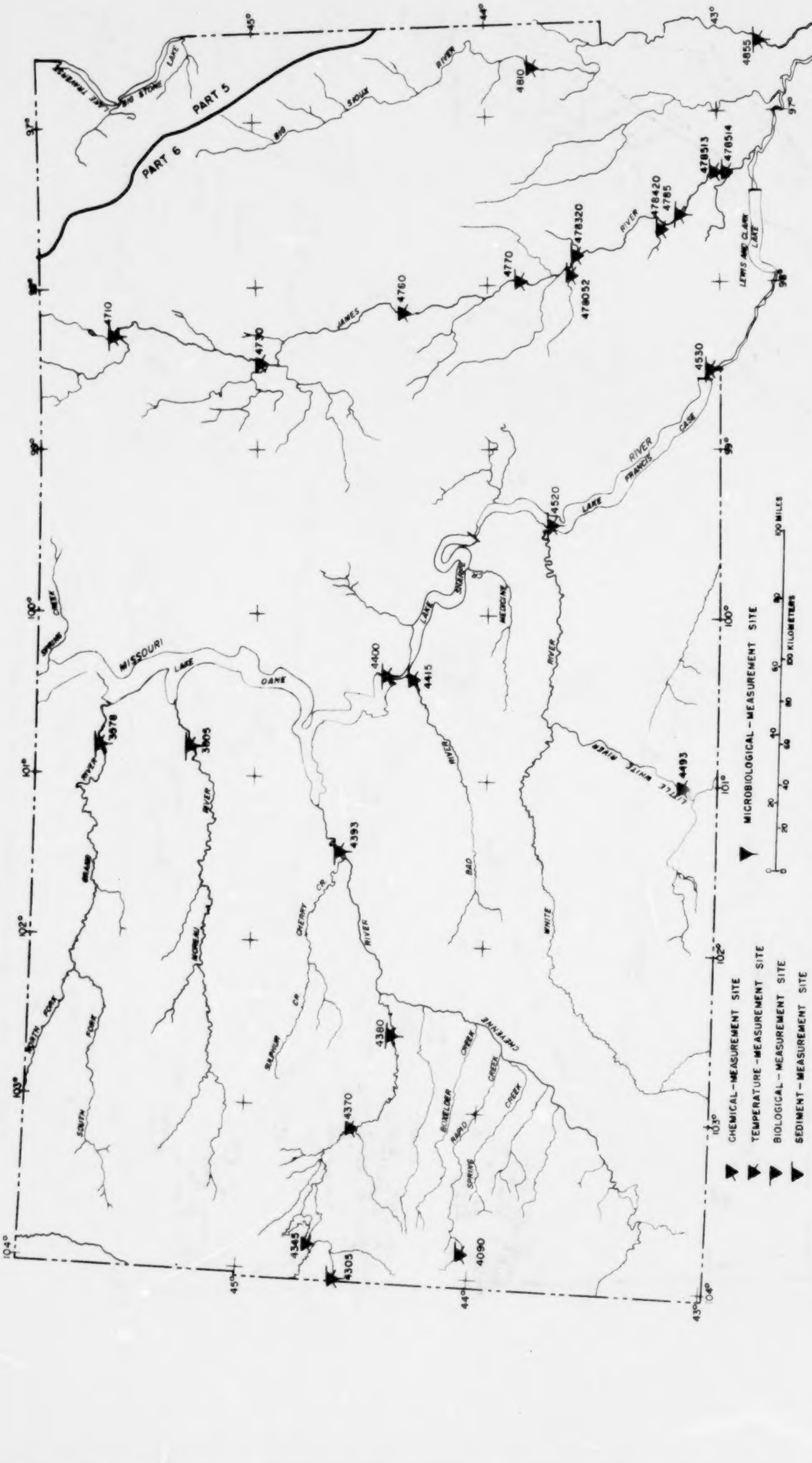
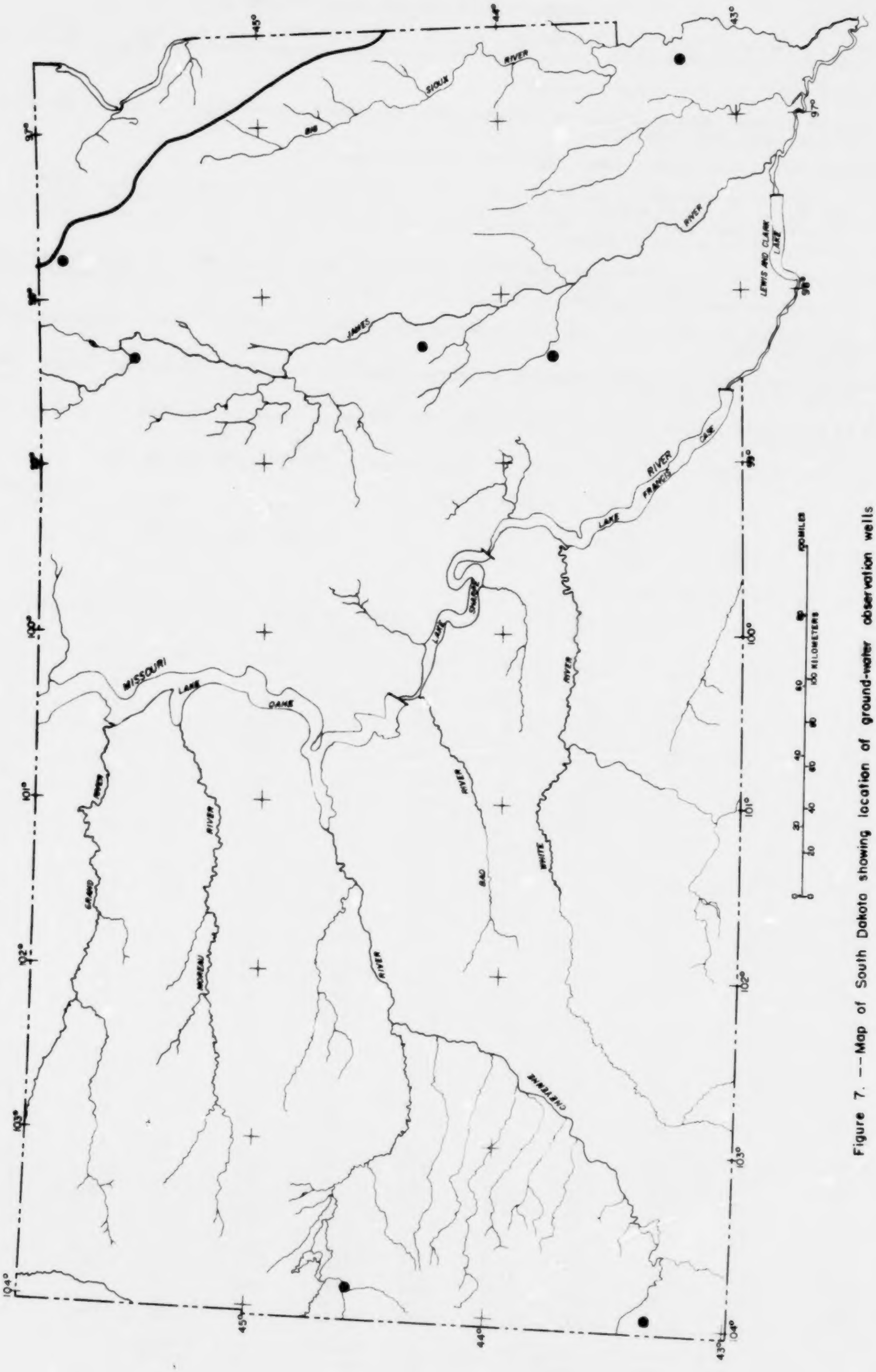

CHEMICAL-MEASUREMENT SITE
TEMPERATURE-MEASUREMENT SITE
BIOLOGICAL-MEASUREMENT SITE
SEDIMENT-MEASUREMENT SITE
MICROBIOLOGICAL-MEASUREMENT SITE
0 20 40 60 80 100 MILES
0 20 40 60 80 100 KILOMETERS
PART 5
PART 6
LAKE TRAVERSE
BIG STONE LAKE
BIG SIOUX RIVER
JAMES RIVER
LEWIS AND CLARK LAKE
LAKE FRANCIS CASE
MISSOURI RIVER
LAKE OAHE
LAKE SHARPE
MEDICINE CR
BAD RIVER
WHITE RIVER
LITTLE WHITE RIVER
GRAND RIVER
MOREAU RIVER
CHEYENNE RIVER
CHERRY CR
SULPHUR CR
BOXELDER CREEK
RAPID CREEK
SPRING CREEK
SOUTH FORK
NORTH FORK
SPRING CREEK
4855
4810
478513
478514
478420
4785
478320
478052
4770
4760
4710
4730
4530
4520
4400
4415
3878
3905
4493
4393
4380
4370
4345
4305
4090
45°
44°
43°
104°
103°
102°
101°
100°
99°
98°
97°

Figure 6.-- Map of South Dakota showing location of surface-water quality stations



45°
44°
43°
97°
98°
99°
100°
101°
102°
103°
104°
BIG SIOUX RIVER
JAMES RIVER
LEWIS AND CLARK LAKE
LAKE FRANCIS CASE
RIVER
MISSOURI
LAKE OAHE
LAKE SHARPE
WHITE RIVER
BAD RIVER
CHEYENNE RIVER
MOREAU RIVER
GRAND RIVER
0 20 40 60 80 100 MILES
0 20 40 60 80 100 KILOMETERS

Figure 7. --Map of South Dakota showing location of ground-water observation wells

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

LOCATION.--Lat 45°32'49", long 103°58'23", in SW¼ sec.2, T.18 N., R.1 E., Harding County, Hydrologic Unit 10110201, on left bank 15 ft upstream from bridge on State Highway 20 at east edge of Camp Crook.

DRAINAGE AREA.--1,970 mi², approximately.

PERIOD OF RECORD.--September 1903 to November 1906, May 1956 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1904. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,108.98 ft National Geodetic Vertical Datum of 1929. Sept. 2, 1903, to Nov. 30, 1906, nonrecording gage at site 0.5 mi upstream at different datum. May 1956 to Oct. 8, 1957, nonrecording gage at site 15 ft downstream, and Oct. 9, 1957, to Sept. 30, 1976, water-stage recorder at present site both at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period and those for period of no gage-height record, Aug. 24 to Sept. 30, which are poor. Small diversions above station for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--30 years, 136 ft³/s (98,530 acre-ft/yr); median of yearly mean discharges, 120 ft³/s, 86,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s Mar. 24, 1978 (gage height, 16.90 ft), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 18 ft, present datum, from local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 12	0645	2480	9.47	Mar. 15	1045	1260	7.23
Feb. 18	2030	*3020	*10.35				

Minimum daily discharge, 0.09 ft³/s Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	83	25	25	120	367	87	35	29	6.8	3.2	10
2	36	64	26	23	100	285	124	33	29	5.9	1.2	5.0
3	25	56	23	26	105	243	148	32	27	5.6	1.8	3.0
4	18	43	22	24	110	211	130	30	26	5.0	1.9	2.0
5	48	58	21	28	110	189	102	28	24	3.7	.40	1.6
6	40	54	17	31	90	167	91	28	22	2.9	.42	1.4
7	34	57	16	35	100	151	81	29	22	2.6	.09	1.3
8	34	52	14	37	110	123	74	28	22	2.0	3.0	1.1
9	76	53	15	35	120	111	67	28	20	1.6	8.1	.90
10	221	50	16	34	140	109	63	27	16	8.2	6.1	.85
11	1550	43	13	37	160	102	60	25	17	16	4.1	.80
12	2190	39	15	39	180	100	55	31	18	5.2	2.8	.75
13	1320	40	19	39	200	113	52	30	18	4.3	2.6	.65
14	1280	39	18	41	250	343	46	40	19	3.3	1.8	.75
15	1050	35	16	44	500	1010	46	46	22	1.7	.99	.60
16	556	32	17	48	702	933	53	48	14	1.8	.80	.75
17	295	30	18	54	1240	593	58	150	18	2.1	1.1	.90
18	215	31	21	59	1760	370	60	158	17	2.9	.93	.80
19	198	33	20	80	1120	270	97	110	13	3.1	.82	2.2
20	169	33	19	100	1300	207	96	86	12	3.8	.92	5.0
21	139	30	17	90	1300	169	88	72	29	3.0	1.0	4.0
22	114	30	15	80	1310	150	74	64	37	2.4	2.5	3.5
23	96	22	13	80	1340	144	64	54	25	2.9	22	3.0
24	85	23	14	90	1430	132	57	47	21	3.5	6.0	2.5
25	77	24	12	90	1160	117	52	47	15	2.3	4.0	2.3
26	71	23	13	80	836	108	46	44	11	1.7	3.0	2.2
27	66	24	14	70	677	101	42	40	10	3.5	1.7	2.1
28	71	27	12	80	572	99	42	37	9.1	10	1.0	2.9
29	62	26	11	100	---	91	39	36	8.6	4.8	1.5	2.6
30	124	25	14	120	---	82	36	34	7.7	7.7	2.5	2.6
31	146	---	17	130	---	83	---	30	---	6.2	3.5	---
TOTAL	10460	1179	523	1849	17142	7273	2130	1527	578.4	136.5	91.77	68.05
MEAN	337	39.3	16.9	59.6	612	235	71.0	49.3	19.3	4.40	2.96	2.27
MAX	2190	83	26	130	1760	1010	148	158	37	16	22	10
MIN	18	22	11	23	90	82	36	25	7.7	1.6	.09	.60
AC-FT	20750	2340	1040	3670	34000	14430	4220	3030	1150	271	182	135

CAL YR 1982 TOTAL 70799.60 MEAN 194 MAX 5570 MIN 1.5 AC-FT 140400
WTR YR 1983 TOTAL 42957.72 MEAN 118 MAX 2190 MIN .09 AC-FT 85210

06354860 SPRING CREEK NEAR HERREID, SD

LOCATION.--Lat 45°58'52", long 100°06'28", in SW¼ sec.13, T.127 N., R.77 W., Campbell County, Hydrologic Unit 10130102, on left bank 0.5 mi upstream from county highway bridge, 2.4 mi southwest of Herreid and 13.2 mi upstream from high-water line of Lake Oahe.

DRAINAGE AREA.--440 mi^2, approximately, of which about 220 mi^2 is probabably noncontributing.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,653.80 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--21 years, 8.70 ft^3/s (6,300 acre-ft/yr); median of yearly mean discharges, 3.3 ft^3/s (2,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,340 ft^3/s Mar. 29, 1978 (gage height, 11.49 ft); maximum gage height, 11.60 ft Mar. 17, 1966; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40 ft^3/s at 1100 hours, Mar. 7 (gage height, 5.91 ft), backwater from ice, no other peak above base of 40 ft^3/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.80	.46	.03	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.75	.38	.03	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.65	.38	.01	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.60	.37	.07	.00	.00	.00
5	.00	.00	.00	.00	.00	1.0	.50	.32	.15	.00	.00	.00
6	.00	.00	.00	.00	.00	4.0	.42	.37	.09	.00	.00	.00
7	.00	.00	.00	.00	.00	30	.38	.49	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	25	.38	.76	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	15	.30	.65	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	10	.22	.42	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	8.9	.22	.53	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	8.5	.50	1.7	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	20	1.4	2.2	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	34	2.0	1.9	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	25	5.6	1.9	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	15	4.0	3.1	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	8.9	2.8	2.6	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	5.6	2.1	2.1	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	3.8	1.8	1.5	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	2.5	1.6	.80	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	2.1	1.4	.50	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	2.3	1.3	.40	.09	.00	.00	.00
23	.00	.00	.00	.00	.00	2.2	1.2	.30	.12	.00	.00	.00
24	.00	.00	.00	.00	.00	1.9	1.0	.20	.17	.00	.00	.00
25	.00	.00	.00	.00	.00	1.2	.86	.15	.18	.00	.00	.00
26	.00	.00	.00	.00	.00	1.2	.65	.10	.22	.00	.00	.00
27	.00	.00	.00	.00	.00	1.2	.60	.07	.15	.00	.00	.00
28	.00	.00	.00	.00	.00	1.2	.60	.05	.02	.00	.00	.00
29	.00	.00	.00	.00	---	1.0	.50	.04	.00	.00	.00	.00
30	.00	.00	.00	.00	---	1.0	.46	.03	.00	.00	.00	.00
31	.00	---	.00	.00	---	.92	---	.03	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	233.42	35.59	24.80	1.33	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	7.53	1.19	.80	.044	.000	.000	.000
MAX	.00	.00	.00	.00	.00	34	5.6	3.1	.22	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.22	.03	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	463	71	49	2.6	.00	.00	.00

CAL YR 1982 TOTAL 5826.98 MEAN 16.0 MAX 1050 MIN .00 AC-FT 11560
WTR YR 1983 TOTAL 295.14 MEAN .81 MAX 34 MIN .00 AC-FT 585

06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD

LOCATION.--Lat 45°47'39", long 102°21'59", in NE¼SE¼ sec.10, T.21 N., R.14 E., Perkins County, Hydrologic Unit 10130301, on right bank 1,400 ft upstream from highway bridge and 9.8 mi south of White Butte.

DRAINAGE AREA.--1,190 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1279: 1947, 1950.

GAGE.--Water-stage recorder. Altitude of gage is 2,275 ft, by barometer. See WSP 1917 for history of changes prior to June 12, 1951. June 12, 1951, to Aug. 20, 1975, water-stage recorder, and Aug. 21 to Sept. 10, 1975, nonrecording gage at site 1,300 ft downstream; Sept. 11, 1975, to Mar. 22, 1976, nonrecording gage at present site, and Mar. 23 to July 28, 1976, nonrecording gage at site 1,400 ft downstream, all at present datum.

REMARKS.--Records good except those for winter period, Nov. 10 to Mar. 12, which are poor. Flow regulated by Bowman-Haley Reservoir, capacity, 93,000 acre-ft, 71 mi upstream, beginning August 1966. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 55.9 ft³/s (40,500 acre-ft/yr); median of yearly mean discharges, 35 ft³/s (25,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,900 ft³/s Apr. 16, 1950 (gage height, 20.0 ft), from floodmarks, from rating curve extended above 19,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 762 ft³/s at 0015 hours, June 23 (gage height, 5.20 ft); minimum daily, 0.20 ft³/s Aug. 19, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	83	28	15	30	190	67	38	56	58	23	1.4
2	28	75	29	15	30	180	65	35	53	50	17	1.7
3	25	82	30	16	29	180	62	33	48	48	20	1.6
4	25	115	29	16	28	170	61	31	44	46	9.4	1.4
5	26	125	29	16	27	170	60	28	41	40	5.4	1.3
6	26	120	28	16	25	160	56	37	36	35	3.5	1.3
7	27	110	26	17	23	160	54	47	32	32	2.6	1.4
8	30	100	25	17	25	150	55	48	25	29	1.8	1.6
9	100	91	26	17	25	150	55	57	25	30	1.4	1.6
10	400	80	26	16	26	145	54	62	20	25	1.0	2.5
11	450	60	25	16	27	150	52	72	14	20	.90	3.0
12	300	45	23	17	28	160	57	80	19	18	.79	2.7
13	143	40	23	17	29	202	57	79	18	16	.64	2.7
14	100	40	20	30	30	206	55	97	19	14	.54	2.7
15	60	40	18	45	35	177	55	130	26	12	.46	2.5
16	50	42	18	50	50	150	56	191	28	11	.38	2.5
17	40	45	19	100	80	139	59	197	31	14	.32	2.5
18	35	42	19	90	150	130	61	148	36	10	.26	2.4
19	30	40	19	85	200	122	67	121	42	6.6	.20	2.3
20	27	35	18	80	220	119	69	112	64	14	.23	2.5
21	26	32	18	70	240	113	66	107	43	11	.20	2.7
22	26	30	18	65	230	106	61	100	180	10	.84	2.7
23	25	30	18	60	230	97	57	95	505	8.6	1.3	2.6
24	24	32	17	60	220	90	52	93	246	7.3	1.2	2.5
25	24	28	17	55	220	90	48	87	167	5.3	1.0	2.5
26	23	28	17	50	210	84	45	83	122	3.7	.90	2.5
27	22	29	16	45	200	80	42	76	93	4.3	.79	2.4
28	22	29	14	40	190	76	41	72	76	7.0	.64	2.4
29	21	30	14	35	---	74	40	66	70	7.0	.54	2.5
30	25	28	15	35	---	71	41	64	64	7.0	.46	2.5
31	51	---	15	33	---	70	---	59	---	27	.79	---
TOTAL	2236	1706	657	1269	2857	4161	1670	2545	2243	626.8	98.48	66.9
MEAN	72.1	56.9	21.2	40.9	102	134	55.7	82.1	74.8	20.2	3.18	2.23
MAX	450	125	30	100	240	206	69	197	505	58	23	3.0
MIN	21	28	14	15	23	70	40	28	14	3.7	.20	1.3
AC-FT	4440	3380	1300	2520	5670	8250	3310	5050	4450	1240	195	133

CAL YR 1982 TOTAL 43056.65 MEAN 118 MAX 1540 MIN .80 AC-FT 85400
WTR YR 1983 TOTAL 20136.18 MEAN 55.2 MAX 505 MIN .20 AC-FT 39940

06356000 SOUTH FORK GRAND RIVER AT BUFFALO, SD

LOCATION.--Lat 45°34'34", long 103°32'38", in SW¼ sec.29, T.19 N., R.5 E., Harding County, Hydrologic Unit 10130302, on right bank at downstream side of bridge on U.S. Highway 85, 0.3 mi south of Buffalo.

DRAINAGE AREA.--148 mi^2.

PERIOD OF RECORD.--August 1955 to current year.

REVISED RECORDS.--WSP 1917: 1956-57. WRD SD-76-1: 1974(M), 1975.

GAGE.--Water-stage recorder. Datum of gage is 2,839.60 ft National Geodetic Vertical Datum of 1929. Prior to May 5, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 8.52 ft^3/s (6,170 acre-ft/yr); median of yearly mean discharges, 7.0 ft^3/s (5,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,780 ft^3/s June 14, 1963 (gage height, 9.01 ft), from rating curve extended above 550 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in 1956-58, 1960, 1962, 1965, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 15.4 ft, from information by South Dakota Department of Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 9	2145	*685	6.89	July 28	1115	622	a*6.91
June 17	1515	670	6.82	July 30	0815	365	6.20

a Backwater from vegetation.
Minimum daily discharge, 0.91 ft^3/s Aug. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	13	4.3	5.5	3.4	3.4	4.3	3.0	2.9	2.2	5.7	1.6
2	3.8	7.6	3.9	5.5	3.1	3.2	4.0	3.1	2.9	2.2	2.8	1.7
3	4.9	4.9	4.4	5.5	2.8	3.1	3.9	3.0	3.1	3.1	4.8	1.4
4	3.8	4.2	4.6	6.0	2.9	3.1	3.9	2.9	3.1	2.3	2.1	1.3
5	5.2	4.6	4.4	6.0	2.8	3.4	3.9	3.0	3.2	2.0	1.6	2.0
6	5.2	4.2	3.9	6.0	2.4	4.2	3.9	3.0	3.0	2.0	1.4	1.1
7	3.5	3.8	3.1	6.0	2.7	4.6	3.6	3.0	3.2	1.8	1.3	1.1
8	21	3.6	1.7	6.6	3.0	5.6	3.2	3.0	3.3	1.9	1.0	1.4
9	252	3.4	2.0	6.4	2.8	5.1	3.6	2.8	3.1	1.7	1.1	1.3
10	374	3.6	2.3	6.0	3.0	5.9	3.5	2.7	3.1	1.6	1.0	1.1
11	41	3.7	2.1	6.0	3.2	6.6	3.8	2.8	3.6	1.4	1.0	1.1
12	9.1	3.4	2.8	6.4	3.3	21	3.8	4.5	6.7	1.3	.98	1.1
13	5.6	3.7	4.1	6.4	4.0	10	4.0	20	3.2	1.2	1.1	1.2
14	4.5	3.7	4.1	5.2	4.5	6.2	4.3	53	3.2	1.3	1.3	1.4
15	4.0	3.6	3.5	6.0	4.2	4.6	5.8	39	3.3	1.3	.91	1.4
16	3.9	3.8	6.0	5.6	4.0	4.2	9.8	9.5	3.1	1.3	1.0	1.5
17	3.6	4.0	5.6	5.2	4.5	4.3	6.8	5.6	51	1.4	1.1	1.5
18	3.5	3.9	5.6	5.0	5.0	4.0	5.4	3.5	12	1.3	1.1	1.5
19	3.2	3.6	5.4	4.9	4.7	4.2	3.9	3.0	5.8	1.3	1.1	1.5
20	3.5	3.6	5.2	4.8	4.2	4.1	3.4	2.8	12	1.5	1.3	1.7
21	3.8	3.8	5.4	4.6	4.2	4.0	3.3	2.7	5.7	1.2	1.1	1.7
22	4.7	3.7	5.8	4.6	4.5	4.3	3.1	2.5	23	1.1	12	1.9
23	4.8	3.6	4.9	4.2	5.0	3.7	3.0	2.8	14	1.1	28	2.0
24	4.6	4.0	4.7	4.1	5.0	3.8	3.0	2.9	4.8	1.1	5.7	1.9
25	4.5	4.1	4.5	4.8	4.5	4.0	3.1	3.0	3.1	1.1	2.1	1.9
26	4.3	4.1	4.5	5.1	3.8	4.5	3.0	2.9	2.7	1.1	1.6	1.8
27	4.8	4.5	4.3	5.2	3.8	5.3	2.9	3.3	2.5	15	1.4	1.9
28	8.0	4.6	4.3	5.2	3.5	5.3	2.9	3.3	2.4	296	1.3	1.9
29	54	4.7	4.5	4.7	---	6.6	2.9	3.0	2.5	47	1.2	2.2
30	35	4.6	5.0	3.9	---	4.8	2.9	2.9	2.3	248	1.3	2.5
31	20	---	5.0	3.7	---	4.6	---	3.0	---	29	1.3	---
TOTAL	908.9	131.6	131.9	166.1	104.8	161.7	118.9	205.5	197.8	675.8	90.69	47.6
MEAN	29.3	4.39	4.25	5.36	3.74	5.22	3.96	6.63	6.59	21.8	2.93	1.59
MAX	374	13	6.0	6.6	5.0	21	9.8	53	51	296	28	2.5
MIN	3.2	3.4	1.7	3.7	2.4	3.1	2.9	2.5	2.3	1.1	.91	1.1
AC-FT	1800	261	262	329	208	321	236	408	392	1340	180	94

CAL YR 1982 TOTAL 5796.11 MEAN 15.9 MAX 572 MIN .50 AC-FT 11500
WTR YR 1983 TOTAL 2941.29 MEAN 8.06 MAX 374 MIN .91 AC-FT 5830

06356500 SOUTH FORK GRAND RIVER NEAR CASH, SD

LOCATION.--Lat 45°38'56", long 102°38'27", in SW¼SW¼ sec.34, T.20 N., R.12 E., Perkins County, Hydrologic Unit 10130302, on left bank at downstream side of highway bridge, 1.0 mi upstream from Little Nasty Creek, 4.0 mi north of Cash, 10 mi south of Lodgepole, 12 mi northwest of Bison, and 16 mi downstream from Big Nasty Creek.

DRAINAGE AREA.--1,350 mi^2, approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,422.75 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 25, 1946, nonrecording gage, and Oct. 25, 1946, to May 16, 1966, water-stage recorder, at site 500 ft upstream. May 17, 1966, to May 2, 1968, nonrecording gage, at present site, all at same datum.

REMARKS.--Records good except those for winter period, Nov. 13 to Mar. 13, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 54.1 ft^3/s (39,200 acre-ft/yr); median of yearly mean discharges, 36 ft^3/s (26,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft^3/s Apr. 15, 1950 (gage height, 15.40 ft), from rating curve extended above 14,000 ft^3/s on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 11	1130	*1250	4.66	July 20	2145	761	3.76
Oct. 30	2115	536	3.36	July 30	1230	550	3.31
Feb. 15	0800	ice jam	*4.79				

Minimum daily discharge, 3.0 ft^3/s Feb. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	150	10	9.0	5.0	5.0	33	17	17	13	374	8.0
2	23	101	9.5	9.0	4.5	5.0	28	18	16	12	177	7.5
3	23	63	9.5	9.0	4.0	4.5	27	17	15	17	89	8.2
4	28	32	9.0	9.5	3.5	4.5	25	15	14	17	59	8.0
5	24	25	9.0	9.5	3.2	5.0	21	14	13	13	36	6.9
6	25	20	8.5	9.5	3.0	6.0	21	24	12	11	62	8.0
7	27	18	8.5	9.5	3.2	6.5	20	25	12	12	153	7.1
8	56	17	8.0	10	3.5	7.0	19	18	14	12	77	9.0
9	103	21	8.5	9.5	3.5	30	17	17	11	8.9	39	9.2
10	730	31	8.0	9.0	3.5	50	17	18	12	8.2	19	8.5
11	1080	17	8.0	9.0	3.5	70	18	19	11	8.2	13	7.2
12	625	18	8.5	9.0	4.0	120	18	34	13	6.8	11	6.8
13	136	16	8.5	9.5	4.5	160	19	52	14	7.2	10	6.7
14	80	12	9.0	9.0	4.5	148	19	82	15	6.8	8.1	7.5
15	60	11	9.5	8.5	4.5	118	20	219	18	6.5	8.3	8.3
16	49	12	9.5	8.0	5.0	95	22	292	17	6.5	7.8	7.5
17	41	12	10	7.5	5.5	80	30	239	31	7.2	7.8	7.5
18	35	11	9.5	7.0	6.0	57	45	125	27	7.5	7.8	7.9
19	30	11	9.5	6.5	6.5	46	35	91	19	7.7	7.8	8.6
20	27	10	9.0	6.5	6.0	32	25	73	113	99	8.3	8.5
21	25	10	9.0	6.5	5.5	46	20	60	47	68	8.4	6.7
22	23	9.0	8.5	6.0	6.0	31	18	50	47	22	11	6.9
23	22	8.5	8.5	6.0	6.5	35	17	41	46	15	14	6.8
24	21	9.0	8.5	6.0	6.5	36	17	37	26	30	30	7.1
25	21	8.5	8.0	5.5	6.0	44	17	32	37	16	40	7.2
26	20	9.0	8.0	5.5	5.5	35	17	32	28	11	59	7.8
27	21	9.5	7.5	6.0	5.5	30	16	29	17	11	31	6.5
28	29	9.5	7.5	6.5	5.0	31	16	27	13	37	17	6.8
29	118	10	8.0	6.0	---	35	16	24	13	192	12	6.2
30	318	10	8.5	5.5	---	35	17	19	13	412	10	6.6
31	325	---	8.5	5.0	---	35	---	18	---	255	9.4	---
TOTAL	4175	701.0	270.0	238.5	133.4	1442.5	650	1778	701	1356.5	1416.7	225.5
MEAN	135	23.4	8.71	7.69	4.76	46.5	21.7	57.4	23.4	43.8	45.7	7.52
MAX	1080	150	10	10	6.5	160	45	292	113	412	374	9.2
MIN	20	8.5	7.5	5.0	3.0	4.5	16	14	11	6.5	7.8	6.2
AC-FT	8280	1390	536	473	265	2860	1290	3530	1390	2690	2810	447

CAL YR 1982 TOTAL 34426.5 MEAN 94.3 MAX 2080 MIN 1.0 AC-FT 68280
WTR YR 1983 TOTAL 13086.1 MEAN 35.9 MAX 1080 MIN 3.0 AC-FT 25960

06357000 SHADEHILL RESERVOIR AT SHADEHILL, SD

LOCATION.--Lat 45°45'12", long 102°12'12", in E½ sec.25, T.21 N., R.15 E., Perkins County, Hydrologic Unit 10130302, at dam on Grand River, 1.3 mi southwest of Shadehill.

DRAINAGE AREA.--3,120 m^2, approximately.

PERIOD OF RECORD.--June 1950 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1952, occasional elevations obtained by level circuits and Apr. 3, 1952, to Apr. 28, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by earthfill dam. Storage began July 1, 1950; dam completed August 1951. Conservation storage, 81,443 acre-ft between elevations 2,250.8 ft (invert of canal and river outlet) and elevation 2,272.0 ft (crest of morning-glory spillway). Dead storage, 58,231 acre-ft below elevation 2,250.8 ft. Flood control, 217,708 acre-ft between elevations 2,272.0 ft and 2,302.0 ft (crest of emergency spillway). Surcharge, 111,203 acre-ft at elevation 2,312.0 ft (maximum pool elevation). Total reservoir capacity is 468,585 acre-ft at elevation 2,312.0 ft. The reservoir provides flood control and water for irrigation purposes. Figures given herein represent usable contents above elevation 2,250.8 ft. Prior to Oct. 1, 1968, reservoir contents published as total contents and included dead storage.

COOPERATION.--Records of elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum usable contents observed, 259,900 acre-ft Apr. 10, 1952 (elevation, 2,297.86 ft); minimum usable observed since first filling to spillway level, 24,941 acre-ft Nov. 17, 1981 (elevation, 2,258.62 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 81,101 acre-ft June 29 (elevation, 2,271.93 ft); minimum, 61,827 acre-ft Sept. 30 (elevation, 2,267.80 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	2269.11	67763	
Oct. 31	2269.64	70213	+2450
Nov. 30	2269.49	69517	-696
Dec. 31	2268.74	66070	-3447
CAL YR 1982			+40160
Jan. 31	2268.40	64526	-1544
Feb. 28	2269.73	70631	+6105
Mar. 31	2270.72	75281	+4650
Apr. 30	2270.80	75662	+381
May 31	2271.76	80275	+4613
June 30	2271.90	80955	+680
July 31	2270.98	76521	-4434
Aug. 31	2269.85	71189	-5332
Sept. 30	2267.80	61827	-9362
WTR YR 1983			-5936

06357500 GRAND RIVER AT SHADEHILL, SD

LOCATION.--Lat 45°45'25", long 102°11'41", in NW¼NW¼ sec.30, T.21 N., R.16 E., Perkins County, Hydrologic Unit 10130303, on left bank 0.2 mi downstream from Shadehill Dam, 1.1 mi southwest of Shadehill, and 12.0 mi southwest of Lemmon.

DRAINAGE AREA.--3,120 mi², approximately.

PERIOD OF RECORD.--February 1943 to current year. Records for July 1904 to October 1906 collected at site 4 mi upstream and published as "at Seim" in WSP 130, 172, and 208 have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1279: 1943(M). See also Period of Record.

GAGE.--Water-stage recorder. Datum of gage is 2,192.48 ft National Geodetic Vertical Datum of 1929. Prior to Aug. 31, 1947, nonrecording gage, and Aug. 31, 1947, to Oct. 24, 1958, water-stage recorder at site 0.8 mi downstream at datum 6.02 ft lower.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year. Flow completely regulated by Shadehill Reservoir since July 1, 1950. (See station 06357000.)

AVERAGE DISCHARGE.--40 years, 115 ft³/s (83,320 acre-ft/yr); median of yearly mean discharges, 68 ft³/s (49,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,000 ft³/s Apr. 16, 1950 (gage height, 21.0 ft), from floodmarks upstream from bridge; 19.06 ft, from floodmark in gage well, unreliable, site and datum then in use; no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 121 ft³/s Aug. 26, 27; minimum daily discharge, 1.1 ft³/s May 26.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 5-25, Jan. 4-7, May 19 to June 16, July 22 to Aug. 5)

2.3	0.40	3.0	39
2.4	2.7	3.2	63
2.5	5.5	3.5	115
2.6	9.2	4.0	232
2.8	20		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	101	93	101	99	97	109	54	107	88	96	117
2	96	99	93	101	99	97	107	54	107	88	96	117
3	98	99	93	101	99	97	109	54	107	92	96	117
4	98	97	93	105	95	97	109	54	106	88	96	117
5	101	97	93	109	95	99	111	55	105	86	96	117
6	102	95	93	109	95	99	111	58	103	89	94	115
7	101	95	93	109	95	99	111	56	103	88	94	115
8	104	95	92	107	93	97	111	57	101	89	94	116
9	108	93	92	107	93	95	111	57	101	88	93	115
10	107	93	92	107	92	95	111	58	98	90	94	115
11	107	93	93	107	92	93	101	58	98	90	94	113
12	108	93	93	105	92	95	70	69	98	90	91	113
13	111	93	93	105	92	97	60	89	96	90	90	113
14	111	93	93	107	92	97	58	88	95	90	91	113
15	111	93	95	107	92	97	56	91	93	92	90	112
16	109	93	95	105	92	97	56	91	91	92	97	112
17	109	93	95	105	92	99	58	92	92	92	99	112
18	109	93	93	107	93	99	56	93	92	94	97	111
19	109	93	95	109	95	101	56	95	89	94	98	112
20	105	93	97	107	93	101	56	94	89	94	98	111
21	105	93	97	107	93	101	56	96	90	94	98	111
22	103	93	97	107	95	103	56	97	78	95	98	111
23	103	93	99	107	95	103	56	99	95	95	98	111
24	101	93	99	105	95	103	55	99	93	95	95	110
25	103	93	97	105	97	103	55	53	93	96	112	110
26	105	93	99	105	95	105	55	1.1	92	97	121	109
27	105	93	101	101	97	105	55	37	92	97	121	107
28	105	93	101	101	97	105	55	103	90	96	120	108
29	103	93	101	101	---	105	55	103	90	96	120	108
30	103	93	99	101	---	105	55	105	88	96	117	108
31	101	---	101	99	---	107	---	105	---	95	117	---
TOTAL	3238	2824	2960	3259	2644	3093	2280	2315.1	2872	2856	3111	3376
MEAN	104	94.1	95.5	105	94.4	99.8	76.0	74.7	95.7	92.1	100	113
MAX	111	101	101	109	99	107	111	105	107	97	121	117
MIN	96	93	92	99	92	93	55	1.1	78	86	90	107
AC-FT	6420	5600	5870	6460	5240	6130	4520	4590	5700	5660	6170	6700

CAL YR 1982 TOTAL 70327.34 MEAN 193 MAX 2510 MIN .16 AC-FT 139500
WTR YR 1983 TOTAL 34828.10 MEAN 95.4 MAX 121 MIN 1.1 AC-FT 69080

06357800 GRAND RIVER AT LITTLE EAGLE, SD

LOCATION.--Lat 45°39'28", long 100°49'04", in NE¼NE¼ sec.32, T.20 N., R.27 E., Corson County, Hydrologic Unit 10130303, on left bank at downstream side of bridge on State Highway 63, 1.3 mi southwest of Little Eagle and 4.7 mi downstream from Little Oak Creek.

DRAINAGE AREA.--5,370 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,628.63 ft National Geodetic Vertical Datum of 1929. Prior to May 12, 1959, nonrecording gage, and May 12, 1959, to Aug. 11, 1970, water-stage recorder at site 0.6 mi downstream at datum 2.00 ft lower.

REMARKS.--Records good except those for winter periods, Nov. 2-5 and Nov. 8 to Mar. 13, which are poor. Flow regulated by Shadehill Reservoir 144 mi upstream. (See station 06357000.)

AVERAGE DISCHARGE.--25 years, 238 ft³/s (172,400 acre-ft/yr); median of yearly mean discharges, 210 ft³/s (152,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft³/s Mar. 23, 1978; maximum gage height, 21.76 ft Mar. 18, 1966, from floodmarks, ice jam, site and datum then in use; no flow at times in 1958-62, 1969, 1975, 1977-82.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,980 ft³/s at 1915 hours, May 13 (gage height, 8.96 ft); minimum daily discharge, 45 ft³/s Aug. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	170	145	73	80	120	159	91	220	282	341	126
2	80	150	140	75	80	120	152	94	110	462	316	137
3	72	130	140	75	75	115	123	94	110	194	191	130
4	123	120	140	76	75	110	137	94	108	149	157	127
5	140	120	145	77	75	115	147	93	102	167	152	123
6	106	140	140	77	75	150	149	135	100	194	121	108
7	135	140	140	80	80	200	147	522	96	147	116	96
8	191	125	125	80	80	400	144	2310	93	117	106	94
9	175	115	110	80	85	1200	140	1260	89	102	73	87
10	276	110	100	75	85	1150	137	599	87	94	55	86
11	1160	105	95	80	90	1050	137	398	84	87	50	85
12	593	95	95	85	90	1200	159	545	82	84	47	84
13	516	85	100	85	95	1500	172	4530	82	82	45	78
14	376	80	100	85	95	1660	220	3810	100	81	45	80
15	346	80	95	85	95	915	211	1420	123	74	70	135
16	300	85	95	80	100	494	157	929	93	72	93	142
17	270	85	100	80	100	301	140	250	82	84	98	135
18	191	80	100	75	100	363	128	297	78	88	100	132
19	150	80	100	75	110	320	119	329	77	1110	96	137
20	135	75	100	80	130	367	115	278	100	424	77	135
21	125	75	95	80	120	412	110	188	112	277	61	119
22	115	70	95	80	120	398	108	162	96	158	62	123
23	110	70	90	80	115	333	106	135	501	125	60	110
24	105	75	95	75	110	337	106	108	623	112	58	112
25	105	85	80	75	110	417	108	92	236	101	64	117
26	102	90	75	75	115	810	106	75	157	101	64	115
27	130	95	75	80	120	830	100	119	130	132	85	106
28	180	110	70	80	120	771	96	93	112	175	157	102
29	183	130	70	85	---	556	94	184	121	322	180	102
30	180	145	70	80	---	301	96	217	140	394	177	104
31	175	---	70	80	---	180	---	170	---	400	170	---
TOTAL	6929	3115	3180	2468	2725	17225	4023	19621	4244	6391	3485	3367
MEAN	224	104	103	79.0	97.3	556	134	633	141	206	112	112
MAX	1160	170	145	85	130	1660	220	4530	623	1110	341	142
MIN	72	70	70	73	75	110	94	75	77	72	45	78
AC-FT	13740	6180	6310	4860	5410	34170	7980	38920	8420	12680	6910	6680

CAL YR 1982 TOTAL 187695.4 MEAN 514 MAX 8860 MIN 1.1 AC-FT 372300
WTR YR 1983 TOTAL 76753.0 MEAN 210 MAX 4530 MIN 45 AC-FT 152200

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956, 1969, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to September 1976, October 1977 to September 1981.
WATER TEMPERATURES: October 1975 to September 1980.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,100 micromhos Dec. 4, 7-9, 1976; minimum daily, 290 micromhos Feb. 7, 1976.
WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 26, 1976; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 19,000 mg/L May 2, 1972; minimum daily mean, 0 mg/L Jan. 10, 11, Feb. 5-10, 1975.
SEDIMENT LOADS: Maximum daily, 259,000 tons Mar. 12, 1972; minimum daily, 0 ton Jan. 10, 11, Feb. 5-10, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV											
09...	0810	114	1470	--	.5	100	--	>1200	370	220	0
DEC											
07...	1420	139	--	--	.0	--	--	--	--	--	--
JAN											
05...	1200	77	1900	--	3.0	--	--	--	--	--	--
FEB											
09...	1010	86	1680	8.1	.0	4.7	.0	380	440	280	0
MAR											
17...	1425	297	--	--	--	--	--	--	--	--	--
APR											
06...	0945	148	1700	--	8.5	--	--	--	--	--	--
MAY											
04...	0940	94	1770	8.4	10.0	7.6	--	--	--	320	0
JUN											
02...	0840	113	1800	--	14.5	--	--	--	--	--	--
28...	1025	118	1220	--	21.0	--	--	--	--	--	--
JUL											
27...	0840	143	1040	--	23.0	--	--	--	--	--	--
SEP											
01...	0940	116	1270	8.2	24.0	330	7.8	E17	E9	210	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV											
09...	43	26	280	73	9	8.1	490	291	8.3	.30	3.4
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
JAN											
05...	--	--	--	--	--	--	--	--	--	--	--
FEB											
09...	51	38	340	71	9	10	610	337	12	.40	2.2
MAR											
17...	--	--	--	--	--	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	60	41	310	67	8	9.5	600	337	11	.40	2.5
JUN											
02...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
27...	--	--	--	--	--	--	--	--	--	--	--
SEP											
01...	44	24	290	71	8	9.3	480	262	7.5	.30	7.2

> More than.
E Estimated.

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
NOV											
09...	1030	1000	1.4	317	.160	.080	.10	1.6	.040	.080	.25
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
JAN											
05...	--	--	--	--	--	--	--	--	--	--	--
FEB											
09...	1210	1300	1.6	280	.100	.170	.22	1.1	.350	.020	.06
MAR											
17...	--	--	--	--	--	--	--	--	--	--	--
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	1250	1200	1.7	316	<.100	.120	.15	1.1	.020	.030	.09
JUN											
02...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
27...	--	--	--	--	--	--	--	--	--	--	--
SEP											
01...	985	980	1.3	309	<.100	.070	.09	1.6	.050	.220	.67

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
NOV											
09...	0810	--	2	--	<1	--	<1	<3	--	8	--
FEB											
09...	1010	--	2	--	2	--	<1	<3	--	14	--
MAY											
04...	0940	--	1	--	<1	--	<1	<3	--	4	--
SEP											
01...	0940	--	6	--	<1	--	<1	<3	--	17	--

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV											
09...	17	--	2	--	9	--	.2	--	1	--	6
FEB											
09...	27	--	5	--	25	--	.4	--	1	--	21
MAY											
04...	16	--	2	--	7	--	.1	--	1	--	26
SEP											
01...	5	--	<1	--	5	--	.2	--	1	--	<3

< Less than.

06359500 MOREAU RIVER NEAR FAITH, SD

LOCATION.--Lat 45°11'52", long 102°09'22", in NW¼NW¼ sec.10, T.14 N., R.16 E., Perkins County, Hydrologic Unit 10130300, on left bank 10 ft downstream from bridge on State Highway 73, 3.1 mi downstream from Rabbit Creek and 13.5 mi northwest of Faith.

DRAINAGE AREA.--2,660 mi², approximately.

PERIOD OF RECORD.--March 1943 to current year.

REVISED RECORDS.--WSP 1176: 1944. WSP 1279: 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 2,238.68 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1949, nonrecording gage 0.5 mi upstream and Oct. 5, 1949, to July 16, 1959, nonrecording gage and crest-stage gage at present site; both at datum 1.0 ft higher. July 17, 1959, to Sept. 1, 1971, recording gage at site 500 ft downstream at present datum.

REMARKS.--Records good except those for winter period, Nov. 20 to Mar. 9, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--40 years, 135 ft³/s (97,810 acre-ft/yr); median of yearly mean discharges, 92 ft³/s (66,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft³/s Apr. 9, 1944 (gage height, 20.9 ft), from floodmarks, site and datum then in use, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1944, 1946, 1948-51, 1955-66, 1968-71, 1974-75, 1978-81.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,110 ft³/s at 0615 hours, Oct. 11 (gage height, 8.91 ft), no other peak above base of 1,500 ft³/s; minimum daily discharge, 2.4 ft³/s Sept. 28, 29.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 4-7; stage-discharge relation
affected by ice Nov. 20 to Mar. 9)

1.2	2.2	2.5	84	5.0	725
1.3	4.6	3.0	154	6.0	1,150
1.5	11	3.5	249	7.0	1,710
1.7	21	4.0	377	9.0	3,180
2.0	40				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	100	30	9.0	35	40	37	30	19	16	37	12
2	57	74	30	9.0	30	39	35	26	17	46	27	17
3	75	59	30	9.0	28	38	40	24	16	63	19	14
4	47	49	30	9.5	25	40	45	30	15	64	15	13
5	36	50	29	9.5	23	40	41	22	14	47	16	11
6	35	50	29	9.5	22	45	39	21	13	36	42	9.5
7	40	40	28	9.5	21	50	38	20	12	26	43	7.7
8	63	37	26	10	20	70	34	19	11	29	195	6.2
9	531	33	20	10	21	93	31	17	9.7	23	105	5.2
10	1860	32	17	11	23	145	29	17	9.6	17	54	7.4
11	2920	31	16	11	25	127	27	20	8.7	12	33	5.2
12	2720	36	17	12	27	123	35	83	8.1	8.7	21	3.9
13	2700	45	15	12	30	95	35	75	7.9	8.1	13	3.9
14	1060	40	17	11	32	84	35	77	7.4	8.4	3.6	3.6
15	473	42	18	11	35	149	37	86	7.1	7.1	6.8	3.9
16	272	42	16	12	36	206	44	146	6.2	6.2	5.8	3.9
17	191	41	16	12	40	170	43	133	76	5.5	5.2	3.4
18	144	39	17	12	40	129	42	146	83	5.2	4.1	3.2
19	113	38	16	12	39	97	42	199	34	5.5	6.5	3.2
20	95	30	14	11	37	76	43	124	23	6.2	7.1	3.4
21	76	30	13	11	36	67	49	91	19	7.4	18	3.2
22	66	26	11	11	39	60	57	75	16	5.8	32	2.9
23	60	28	10	11	39	54	49	62	14	5.2	37	2.9
24	54	30	9.5	10	37	49	42	50	14	4.9	196	2.9
25	49	30	9.0	10	39	44	31	42	15	3.9	182	2.9
26	45	32	8.5	11	39	44	30	36	21	3.4	214	2.9
27	45	33	8.0	13	39	44	29	33	13	9.2	326	2.7
28	54	33	8.0	15	40	43	28	28	5.8	84	128	2.4
29	76	32	8.5	20	---	41	27	24	6.8	126	54	2.4
30	90	31	8.5	25	---	40	28	22	6.5	60	38	2.9
31	143	---	8.5	30	---	39	---	19	---	37	28	---
TOTAL	14342	1214	542.5	379.0	900	2380	1122	1797	526.8	786.7	1912.1	168.7
MEAN	463	40.5	17.5	12.2	32.1	76.8	37.4	58.0	17.6	25.4	61.7	5.62
MAX	2920	100	30	30	40	206	57	199	83	126	326	17
MIN	35	28	8.0	9.0	20	38	27	17	5.8	3.4	3.6	2.4
AC-FT	28450	2410	1080	752	1790	4720	2230	3560	1050	1560	3790	335

CAL YR 1982 TOTAL 122242.65 MEAN 335 MAX 13800 MIN .65 AC-FT 242500
WTR YR 1983 TOTAL 26072.50 MEAN 71.4 MAX 2920 MIN 2.4 AC-FT 51720

06360500 MOREAU RIVER NEAR WHITEHORSE, SD

LOCATION.--Lat 45°15'21", long 100°50'33", in SW¼SE¼ sec.17, T.15 N., R.27 E., Dewey County, Hydrologic Unit 10130306, on left bank 30 ft downstream from bridge, 2.4 mi southeast of Whitehorse, 8.8 mi downstream from Little Moreau River, and 16.3 mi southeast of town of Timber Lake.

DRAINAGE AREA.--4,880 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1954 to current year.

REVISED RECORDS.--WRD SD-78-1: 1977.

GAGE.--Water-stage recorder. Datum of gage is 1,661.48 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 24, 1954, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Nov. 19 to Mar. 14, which are poor. U.S. Weather Bureau gage-height telemeter at station.

AVERAGE DISCHARGE.--29 years, 202 ft³/s (146,300 acre-ft/yr); median of yearly mean discharges, 120 ft³/s (86,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,700 ft³/s May 24, 1982 (gage height, 26.00 ft); maximum gage height, 26.20 ft Mar. 14, 1972 (backwater from ice); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1953 reached a stage of about 26.2 ft. Flood in March 1947 was probably higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 13	0145	*3740	*10.22	May 14	0015	2080	7.23

No flow July 25, 26, Aug. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	77	33	11	30	54	100	56	48	21	.30	89
2	13	93	33	11	35	54	89	59	46	15	.00	66
3	14	111	33	12	39	52	76	48	56	13	.00	52
4	15	135	32	12	40	52	70	48	50	14	.21	44
5	50	112	32	12	35	50	68	46	35	9.1	25	39
6	62	89	30	13	30	50	66	256	34	8.0	25	32
7	71	111	28	13	30	50	62	471	29	6.4	17	29
8	99	82	25	14	32	48	58	211	25	14	13	22
9	202	70	20	14	32	50	61	297	22	59	9.6	19
10	617	80	19	15	35	70	58	192	19	52	6.4	18
11	1990	74	20	15	35	100	52	126	16	37	3.7	17
12	3430	55	21	16	40	150	57	1040	14	32	2.6	17
13	3450	50	21	17	40	200	66	1300	9.6	17	48	16
14	2880	48	21	17	45	350	75	1420	9.1	15	57	11
15	2480	56	21	16	45	406	68	719	6.9	8.5	42	8.5
16	1250	56	22	15	50	288	70	480	5.8	6.9	40	6.4
17	740	46	22	15	55	211	66	339	8.5	5.8	36	6.4
18	501	38	22	15	50	164	70	272	10	4.7	28	6.9
19	366	37	21	16	50	237	68	235	7.4	9.8	19	7.4
20	288	35	21	16	50	221	67	259	8.0	19	15	8.0
21	235	34	20	16	50	194	67	215	8.0	13	11	8.0
22	194	31	20	15	52	162	61	263	68	7.4	8.5	8.0
23	164	30	19	14	50	157	56	209	67	3.0	9.1	8.0
24	143	30	17	14	50	119	54	166	46	.90	16	8.5
25	123	31	15	14	52	120	54	119	32	.00	13	8.0
26	107	31	13	15	52	106	61	115	24	.00	9.6	8.0
27	95	31	12	13	50	97	54	100	19	14	12	5.8
28	79	32	11	16	52	93	50	86	28	15	71	5.3
29	83	34	10	20	---	87	52	73	31	2.6	262	4.7
30	77	34	11	21	---	129	50	62	20	.75	185	3.1
31	76	---	11	25	---	108	---	55	---	.60	126	---
TOTAL	19902.5	1773	656	470	1206	4229	1926	9337	800.3	422.45	1109.01	580.0
MEAN	642	59.1	21.2	15.2	43.1	136	64.2	301	26.7	13.6	35.8	19.3
MAX	3450	135	33	25	55	406	100	1420	68	59	262	89
MIN	8.5	30	10	11	30	48	50	46	5.8	.00	.00	3.1
AC-FT	39480	3520	1300	932	2390	8390	3820	18520	1590	838	2200	1150

CAL YR 1982 TOTAL 221238.40 MEAN 606 MAX 23700 MIN .00 AC-FT 438800
WTR YR 1983 TOTAL 42411.26 MEAN 116 MAX 3450 MIN .00 AC-FT 84120

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969, 1972-76, 1978 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1970 to September 1976.

REMARKS.--No flow Oct. 7 to Nov. 17, Jan. 6 to Mar. 9, May 27 to June 2, July 14 to Sept. 30. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,300 mg/L May 9, 1972; minimum daily mean, 0 mg/L on many days most years.
SEDIMENT LOADS: Maximum daily, 420,000 tons May 10, 1975; minimum daily, 0 ton on many days each year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV											
08...	1125	79	1240	--	1.0	140	--	>1200	380	240	43
DEC											
07...	1030	26	1160	--	.0	--	--	--	--	--	--
JAN											
04...	1045	12	2730	7.1	1.5	6.8	12.9	K4	<3	550	0
FEB											
08...	1120	32	750	--	.0	--	--	--	--	--	--
MAR											
08...	1145	46	1340	9.0	.5	180	12.4	K27	>1000	320	210
APR											
06...	1155	65	2450	--	9.0	--	--	--	--	--	--
MAY											
03...	1130	47	2200	8.2	12.5	27	--	--	--	390	100
JUN											
01...	1000	50	2250	--	15.5	--	--	--	--	--	--
28...	0800	20	3290	--	21.5	--	--	--	--	--	--
AUG											
31...	1100	126	1140	8.0	26.0	3200	6.3	E37	160	95	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV											
08...	59	22	200	64	6	6.4	450	196	9.0	.20	7.1
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
JAN											
04...	140	48	500	66	10	13	1100	547	28	.40	10
FEB											
08...	--	--	--	--	--	--	--	--	--	--	--
MAR											
08...	79	29	190	56	5	6.7	590	112	9.2	.30	6.7
APR											
06...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	85	44	410	69	9	9.1	930	293	16	.30	3.0
JUN											
01...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
AUG											
31...	21	7.8	250	85	12	8.0	330	299	6.5	.40	9.2

< Less than.
> More than.
E Estimated.
K Non-ideal colony count.

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVEC (MG/L) (70301)	SCLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO4) (71886)
NOV 08...	864	870	1.1	183	.180	.070	.09	1.4	.010	.120	.37
DEC 07...	--	--	--	--	--	--	--	--	--	--	--
JAN 04...	2160	2200	2.9	69	<.100	.120	.15	1.1	.040	.070	.21
FEB 08...	--	--	--	--	--	--	--	--	--	--	--
MAR 08...	1000	980	1.4	129	.680	.160	.21	1.5	.100	.260	.80
APR 06...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	1610	1700	2.2	205	<.100	.080	.10	1.1	.010	.060	.18
JUN 01...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
AUG 31...	826	810	1.1	281	1.70	.100	.13	10	.060	.740	2.3

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (C1000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SCLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
NOV 08...	1125	--	1	--	<1	--	<1	<3	--	8	--
MAR 08...	1145	--	1	--	<1	--	<1	<3	--	4	--
MAY 03...	1130	--	1	--	1	--	<1	1	--	3	--
AUG 31...	1100	--	3	--	<1	--	<1	<3	--	19	--

DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 08...	3	--	3	--	16	--	.1	--	2	--	<3
MAR 08...	14	--	7	--	36	--	.2	--	3	--	<3
MAY 03...	30	--	2	--	30	--	.1	--	2	--	40
AUG 31...	120	--	<1	--	5	--	.5	--	1	--	5

< Less than.

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
NOV											
08...	1125	79	--	--	--	--	--	--	--	--	--
DEC											
07...	1050	28	--	--	--	--	--	--	--	--	--
JAN											
04...	1045	12	--	--	--	--	--	--	--	--	--
FEB											
08...	1120	32	--	--	--	--	--	--	--	--	--
MAR											
08...	1145	48	--	--	--	--	--	--	--	--	--
APR											
06...	1155	66	--	--	--	--	--	--	--	--	--
MAY											
03...	1130	47	--	--	--	--	--	--	--	--	--
JUN											
01...	1000	50	--	--	--	--	--	--	--	--	--
28...	0800	20	--	--	--	--	--	--	--	--	--
AUG											
31...	1100	126	--	--	--	--	--	--	--	--	--

06395000 CHEYENNE RIVER AT EDGEMONT, SD

LOCATION.--Lat 43°18'20", long 103°49'14", in SW¼SE¼SE¼ sec.36, T.8 S., R.2 E., Fall River County, Hydrologic Unit 10120106, on right bank at downstream side of bridge on U.S. Highway 18, at Edgemont, 300 ft downstream from Burlington Northern Railroad bridge and 600 ft upstream from Cottonwood Creek.

DRAINAGE AREA.--7,143 mi².

PERIOD OF RECORD.--June 1903 to November 1906 (no winter records), April 1928 to February 1933, October 1946 to current year.

REVISED RECORDS.--WSP 1086: Drainage area. WSP 1116: 1947. WRD SD-78-1 1977.

GAGE.--Water-stage recorder. Datum of gage is 3,414.56 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 1, 1906, nonrecording gage 20 ft upstream at datum 0.7 ft lower. Apr. 11, 1928, to Feb. 28, 1933, Oct. 4, 1946, to Oct. 23, 1947, and Jan. 11, 1961, to Apr. 24, 1963, nonrecording gage, and Oct. 24, 1947, to Jan. 10, 1961, and Apr. 25, 1963, to Sept. 30, 1972, water-stage recorder all at present site at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor. Many small reservoirs above station used for stock and irrigation water, total capacity, about 45,000 acre-ft. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 98.3 ft³/s (71,220 acre-ft/yr); median of yearly mean discharges, 72 ft³/s (52,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft³/s May 20, 1978 (gage height, 13.65 ft), present datum; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 1920, reached a stage of 13.0 ft and May 1, 1922, 14.0 ft, present datum, from floodmarks at railroad bridge.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,760 ft³/s at 0130 hours, July 19 (gage height, 5.14 ft), no other peak above base of 1,500 ft³/s; minimum daily, 1.5 ft³/s Aug. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	55	44	34	30	103	64	48	28	25	4.8	7.3
2	61	126	42	34	30	94	96	50	27	19	4.5	5.6
3	50	104	42	32	28	78	127	48	27	16	4.8	5.1
4	51	62	42	32	29	62	98	45	28	14	121	4.5
5	73	51	39	32	30	60	87	45	31	13	56	4.0
6	50	50	33	32	31	64	77	49	30	12	47	3.2
7	41	48	24	30	33	59	72	56	29	11	42	3.2
8	40	45	28	30	35	67	70	50	27	10	29	2.8
9	37	42	30	30	40	71	68	45	44	9.2	19	2.7
10	35	42	28	28	45	67	64	43	62	8.5	14	2.8
11	56	40	26	30	50	62	62	39	36	8.0	11	2.7
12	176	36	28	32	60	57	59	39	43	7.2	8.0	1.8
13	523	38	30	34	70	58	55	34	31	6.7	7.7	1.7
14	403	40	32	35	90	57	52	40	30	6.1	6.5	2.0
15	144	47	30	33	120	62	51	39	27	5.4	5.3	3.6
16	98	51	32	31	200	81	50	39	28	5.5	3.4	3.6
17	83	56	34	31	300	76	49	42	28	17	2.8	4.1
18	72	57	34	31	450	61	48	42	32	837	2.2	3.4
19	66	60	32	31	400	60	48	46	127	606	1.5	2.9
20	62	57	32	31	350	56	67	57	169	50	8.8	3.7
21	57	47	32	31	300	53	78	89	161	26	9.2	3.8
22	53	44	34	31	250	53	65	132	98	19	87	4.0
23	50	40	34	31	230	54	58	89	62	16	145	4.0
24	47	35	32	30	221	54	52	72	50	15	85	4.0
25	46	40	30	30	159	53	51	60	40	13	249	4.0
26	44	42	30	29	138	50	46	49	32	12	100	4.6
27	44	42	28	29	125	48	41	37	33	10	32	4.6
28	42	44	28	30	116	49	42	33	29	8.8	17	4.5
29	40	45	28	30	---	59	42	32	27	6.5	12	4.7
30	40	45	30	30	---	60	43	29	29	5.9	13	4.9
31	42	---	32	30	---	59	---	28	---	5.3	9.6	---
TOTAL	2669	1531	1000	964	3960	1947	1882	1546	1445	1824.1	1158.1	113.8
MEAN	86.1	51.0	32.3	31.1	141	62.8	62.7	49.9	48.2	58.8	37.4	3.79
MAX	523	126	44	35	450	103	127	132	169	837	249	7.3
MIN	35	35	24	28	28	48	41	28	27	5.3	1.5	1.7
AC-FT	5290	3040	1980	1910	7850	3860	3730	3070	2870	3620	2300	226

CAL YR 1982 TOTAL 35928.0 MEAN 98.4 MAX 1810 MIN 2.5 AC-FT 71260
WTR YR 1983 TOTAL 20040.0 MEAN 54.9 MAX 837 MIN 1.5 AC-FT 39750

06400000 HAT CREEK NEAR EDGEMONT, SD

LOCATION.--Lat 43°14'24", long 103°35'16", in SW¼SE¼NE¼ sec.25, T.9 S., R.4 E., Fall River County, Hydrologic Unit 10120108, on right bank at upstream side of bridge on State Highway 71, 2.0 mi upstream from mouth, 2.0 mi west of Heppner, and 12.5 mi southeast of Edgemont.

DRAINAGE AREA.--1,044 mi².

PERIOD OF RECORD.--April 1905 to September 1906, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,295.71 ft National Geodetic Vertical Datum of 1929. Nonrecording gage Apr. 8, 1905, to May 2, 1906, at site 0.6 mi downstream and May 3 to July 7, 1906, at site 0.4 mi upstream at different datum. Nov. 6, 1950, to May 1, 1951, and July 18 to Sept. 7, 1975, nonrecording gage and May 2, 1951, to July 17, 1975, recording gage, at site 0.4 mi downstream at present datum.

REMARKS.--Records good. A few small diversions above station for irrigation. Lander ditch diverts water from Hat Creek 0.4 mi upstream from gaging station for irrigating hay meadows downstream from station. Several observations of water temperature and specific conductance were made during the year. Results of discharge measurements, in cubic feet per second, of Lander ditch during water year 1983 are given herewith:

Oct. 5	0	Mar. 8	5.29	June 13	0.04
Nov. 2	0	Apr. 12	1.16	July 12	0
Dec. 7	0	May 19	1.21	Sept. 7	0
Jan. 18	0				

AVERAGE DISCHARGE.--34 years, 18.7 ft³/s (13,550 acre-ft/yr); median of yearly mean discharges, 12 ft³/s (8,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft³/s June 16, 1967 (gage height, 13.35 ft), from rating curve extended above 2,600 ft³/s on basis of slope-area measurement at 11.98 ft; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft³/s at 0130 hours, Aug. 5 (gage height, 14.48 ft), no other peak above base of 1,000 ft³/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	4.1	4.2	3.9	9.8	.77	12	15	6.0	1.8	.84	5.9
2	3.1	8.0	4.3	3.9	8.0	.84	12	19	7.7	1.8	.53	3.0
3	1.8	3.5	4.5	4.0	8.4	1.1	10	18	6.6	2.0	.43	1.6
4	1.5	3.0	4.5	4.1	6.9	1.8	8.6	42	5.3	1.6	15	.84
5	1.5	3.0	4.2	4.1	5.0	2.6	6.9	42	4.8	1.4	297	.48
6	2.0	2.9	3.9	4.5	4.8	1.7	6.2	21	4.3	1.5	9.8	.23
7	1.7	2.7	3.4	4.7	3.6	1.0	7.7	15	5.6	1.3	3.6	.02
8	1.8	2.5	3.5	5.1	3.4	.77	9.4	13	6.2	.69	21	.00
9	4.4	2.5	3.5	5.3	3.6	.90	15	12	6.9	.35	7.3	.00
10	2.0	2.7	3.5	5.3	3.6	.59	23	15	6.2	.68	3.6	.00
11	21	2.7	3.4	5.8	3.6	1.0	25	15	7.3	.40	1.8	.00
12	14	2.6	3.0	9.0	3.8	1.4	20	20	7.3	.16	.70	.00
13	16	2.7	3.1	17	3.8	2.9	18	23	4.3	.00	1.9	.00
14	6.9	2.6	3.2	15	3.6	4.6	17	51	3.3	.00	.77	.00
15	6.7	2.8	3.3	12	4.0	3.4	17	50	3.1	.00	.48	.00
16	5.6	2.8	3.2	11	4.3	.79	16	43	3.3	.00	.43	.00
17	3.8	2.9	3.5	9.2	4.5	.84	14	40	9.1	117	.16	.00
18	2.9	2.9	3.8	7.4	4.8	1.1	20	114	6.6	19	.35	.00
19	2.7	2.9	3.9	5.8	2.0	1.3	21	372	6.9	6.6	.31	.00
20	2.2	3.0	3.8	5.1	1.2	1.4	16	212	60	3.2	.20	.00
21	2.2	2.8	3.8	4.7	.58	1.6	9.5	97	12	1.1	.08	.00
22	2.2	4.1	4.2	4.3	.53	2.1	9.6	43	6.8	.53	.00	.00
23	2.0	4.8	4.3	4.3	.48	2.5	8.0	29	8.9	2.6	.27	.00
24	3.4	4.5	4.7	4.0	.48	3.5	7.7	20	4.5	3.2	.53	.00
25	3.6	4.2	4.9	4.0	.48	4.0	10	17	3.4	2.8	.77	.00
26	3.0	3.7	4.9	4.0	.48	4.2	14	12	3.4	2.3	.92	.00
27	2.7	3.4	4.5	4.0	.48	4.7	14	11	3.6	1.7	1.0	.00
28	2.3	3.9	4.4	4.3	.58	5.5	14	10	2.6	1.4	.92	.00
29	2.7	[illegible]	3.9	4.5	---	5.5	11	8.9	2.2	1.4	5.0	.00
30	2.7	4.2	3.7	4.8	---	17	10	8.9	1.7	1.6	6.2	.00
31	2.8	---	3.7	5.3	---	18	---	8.0	---	1.4	3.8	---
TOTAL	136.6	102.5	120.7	190.4	96.79	99.40	402.6	1416.8	221.9	179.51	385.69	12.07
MEAN	4.41	3.42	3.89	6.14	3.46	3.21	13.4	45.7	7.40	5.79	12.4	.40
MAX	21	8.0	4.9	17	9.8	18	25	372	60	117	297	5.9
MIN	1.5	2.5	3.0	3.9	.48	.59	6.2	8.0	1.7	.00	.00	.00
AC-FT	271	203	239	378	192	197	799	2810	440	356	765	24

CAL YR 1982	TOTAL 9478.09	MEAN 26.0	MAX 840	MIN .00	AC-FT 18800
WTR YR 1983	TOTAL 3364.96	MEAN 9.22	MAX 372	MIN .00	AC-FT 6670

06400497 CASCADE SPRINGS NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'10", long 103°33'07", in SE¼SW¼ sec.20, T.8 S., R.5 E., Fall River County, Hydrologic Unit 10120106, on right bank near upstream end of culvert on State Highway 71, 3.3 mi upstream from mouth, and 8.5 mi southwest of Hot Springs.

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,440 ft, from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Jan. 26 to Mar. 8, which are fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 20.0 ft^3/s (14,490 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49 ft^3/s July 4, 1977 (gage height, 6.25 ft); minimum daily, 16 ft^3/s Mar. 16, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23 ft^3/s at 0900 hours, July 31 (gage height, 5.15 ft); minimum daily, 20 ft^3/s many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	21	21	21	21	21	22	22	21	20	22	21
2	21	21	21	21	21	21	22	22	21	20	22	21
3	21	21	21	21	21	21	22	22	21	20	22	21
4	21	21	21	21	21	21	22	22	21	20	21	21
5	21	21	21	21	20	21	22	22	21	20	21	21
6	22	21	21	21	21	21	22	22	21	20	22	21
7	21	21	21	21	21	21	22	22	21	20	22	21
8	21	21	21	21	21	21	22	22	21	21	22	21
9	21	21	21	21	21	21	22	22	21	21	22	21
10	21	21	21	21	21	22	22	22	21	21	22	21
11	21	21	21	21	21	22	22	22	21	21	22	21
12	21	21	21	21	21	22	22	22	21	20	22	21
13	21	21	21	21	21	22	22	21	21	21	22	21
14	21	21	21	21	21	22	22	21	21	21	22	21
15	21	21	21	21	21	22	22	21	21	21	22	21
16	21	21	21	21	21	22	22	21	21	21	22	21
17	21	21	21	21	21	22	22	21	20	21	22	21
18	21	21	21	21	21	21	22	21	20	21	22	21
19	21	21	21	21	21	21	22	21	20	21	22	21
20	21	21	21	21	21	21	22	21	20	21	22	21
21	21	21	21	21	21	21	22	21	20	21	21	21
22	21	21	21	21	21	21	22	21	20	22	21	21
23	21	21	21	21	21	21	22	21	20	21	21	21
24	21	21	21	21	21	21	22	21	20	21	21	21
25	21	21	21	21	21	21	22	21	20	22	21	21
26	21	21	21	21	21	21	22	21	20	21	21	21
27	21	21	21	21	21	21	22	21	20	21	21	21
28	21	21	21	21	21	21	22	21	20	21	21	20
29	21	21	21	21	---	21	22	21	20	21	21	20
30	21	21	21	21	---	22	22	21	20	21	21	20
31	21	---	21	21	---	22	---	21	---	22	21	---
TOTAL	652	630	651	651	587	661	660	663	616	646	669	627
MEAN	21.0	21.0	21.0	21.0	21.0	21.3	22.0	21.4	20.5	20.8	21.6	20.9
MAX	22	21	21	21	21	22	22	22	21	22	22	21
MIN	21	21	21	21	20	21	22	21	20	20	21	20
AC-FT	1290	1250	1290	1290	1160	1310	1310	1320	1220	1280	1330	1240

CAL YR 1982 TOTAL 7467 MEAN 20.5 MAX 25 MIN 18 AC-FT 14810
WTR YR 1983 TOTAL 7713 MEAN 21.1 MAX 22 MIN 20 AC-FT 15300

06400870 HORSEHEAD CREEK NEAR OELRICHS, SD

LOCATION.--Lat 43°06'57", long 103°13'42", in SW¼SW¼SW¼ sec.6, T.11 S., R.8 E., Fall River County, Hydrologic Unit 10120106, on right bank on downstream side of bridge on Highway 385, 1.6 mi downstream from Beef Creek and 4.5 mi south of Oelrichs.

DRAINAGE AREA.--108 mi^2, approximately.

PERIOD OF RECORD.--October 1981 to June 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,390 ft, from topographic map.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,560 ft^3/s May 20, 1982 (gage height, 14.44 ft); no flow for many days each year.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 438 ft^3/s at 1615 hours, May 18 (gage height, 13.48 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.5	.00	.00	.70	1.6	2.0	.00	2.2			
2	.00	1.5	.00	.00	1.0	1.6	3.0	.00	---			
3	.00	1.4	.00	.00	2.5	1.6	4.5	.99	---			
4	.00	1.4	.00	.00	2.8	1.6	34	9.4	---			
5	.00	1.3	.00	.00	2.8	1.6	117	15	---			
6	.00	1.1	.00	.00	3.0	1.6	181	25	---			
7	.00	1.0	.00	.00	3.0	1.6	.19	4.6	---			
8	.00	.95	.00	.00	2.5	1.5	.00	.20	---			
9	.00	.95	.00	.00	2.5	1.5	.00	.00	---			
10	.00	.95	.00	.00	2.5	1.5	.00	.00	---			
11	.00	1.4	.00	.00	2.5	1.5	.00	.00	---			
12	.00	.92	.00	.00	2.5	1.6	.00	.00	---			
13	.00	.76	.00	.00	2.5	1.6	.22	.00	---			
14	.00	.26	.00	.00	2.5	1.4	2.5	.00	---			
15	.00	.29	.00	.00	2.0	1.4	7.7	.00	---			
16	.00	.04	.00	.00	2.0	1.5	18	.13	---			
17	.00	.04	.00	.00	2.0	1.6	30	59	---			
18	.00	.05	.00	.00	2.0	1.6	45	302	---			
19	.00	.00	.00	.00	1.5	1.6	45	401	---			
20	.00	.00	.00	.00	1.5	1.6	24	257	---			
21	.00	.00	.00	.00	1.5	1.4	.00	23	---			
22	.00	.00	.00	.00	1.5	1.1	.00	.32	---			
23	.00	.00	.00	.00	1.5	1.0	.00	37	---			
24	.00	.00	.00	.00	1.5	.92	.00	7.0	---			
25	.00	.00	.00	.00	1.5	.84	.00	.00	---			
26	.00	.00	.00	.00	1.5	.60	.00	.00	---			
27	.00	.00	.00	.22	1.5	.58	.00	.94	---			
28	.00	.00	.00	.55	1.5	.58	.00	.51	---			
29	1.5	.00	.00	.58	---	.58	.00	1.8	---			
30	1.5	.00	.00	.29	---	.60	.00	2.9	---			
31	1.5	---	.00	.35	---	1.5	---	3.0	---			
TOTAL	4.50	15.81	.00	1.99	56.30	40.80	514.11	1150.79	---			
MEAN	.15	.53	.000	.064	2.01	1.32	17.1	37.1	---			
MAX	1.5	1.5	.00	.58	3.0	1.6	181	401	---			
MIN	.00	.00	.00	.00	.70	.58	.00	.00	---			
AC-FT	8.9	31	.00	3.9	112	81	1020	2280	---			

CAL YR 1982 TOTAL 6840.61 MEAN 18.7 MAX 731 MIN .00 AC-FT 13570

06400875 HORSEHEAD CREEK AT OELRICHS, SD

LOCATION.--Lat 43°11'17", long 103°13'34", in SW¼SW¼SW¼SW¼ sec.7, T.10 S., R.8 E., Fall River County, Hydrologic Unit 10120106, on left bank on downstream side of bridge on Highway 18, 1.5 mi downstream from Lone Well Creek and 0.6 mi northeast of Oelrichs.

DRAINAGE AREA.--136 mi².

PERIOD OF RECORD.--June to September 1983.

GAGE.--Water-stage recorder. Altitude of gage is 3,320 ft, from topographic map.

REMARKS.--Records good.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 4.6 ft³/s June 4 (gage height, 2.81 ft), no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									3.5	.06	.00	.00
2									3.1	.05	.00	.00
3									2.9	.02	.00	.00
4									4.6	.00	.00	.00
5									4.1	.00	.05	.00
6									2.1	.00	.24	.00
7									1.4	.00	.00	.00
8									1.0	.00	.00	.00
9									1.7	.00	.00	.00
10									1.5	.00	.00	.00
11									1.1	.00	.00	.00
12									.85	.00	.00	.00
13									.64	.00	.00	.00
14									.59	.00	.00	.00
15									.53	.00	.00	.00
16									.45	.00	.00	.00
17									.38	.00	.00	.00
18									.34	.08	.00	.00
19									.38	.03	.00	.00
20									.48	.00	.00	.00
21									.53	.00	.00	.00
22									.53	.00	.00	.00
23									.53	.00	.00	.00
24									.48	.00	.00	.00
25									.45	.00	.00	.00
26									.40	.00	.00	.00
27									.36	.00	.00	.00
28									.34	.00	.00	.00
29									.24	.00	.00	.00
30									.07	.00	.00	.00
31									---	.00	.00	---
TOTAL									35.57	.24	.29	.00
MEAN									1.19	.008	.009	.000
MAX									4.6	.08	.24	.00
MIN									.07	.00	.00	.00
AC-FT									71	.5	.6	.00

06401000 ANGOSTURA RESERVOIR NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'35", long 103°26'16", in SW¼NW¼ sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120106, at dam on Cheyenne River, 6.5 mi southeast of Hot Springs.

DRAINAGE AREA.--9,100 mi² (23,570 km²), approximately.

PERIOD OF RECORD.--October 1949 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by concrete gravity dam with earth embankment with gated concrete gravity spillway section. Storage began Oct. 3, 1949; dam completed December 1949. Conservation capacity, 82,443 acre-ft between elevations 3,139.75 ft (invert of lowest outlet) and 3,187.2 ft (top of spillway gates). Dead storage below elevation 3,139.75 ft, 8,598 acre-ft. Figures given herein represent contents above elevation 3,139.75 ft. Water is stored for irrigation.

COOPERATION.--Records of elevations, contents, and diversion to Angostura project furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 145,200 acre-ft June 18, 1962 (elevation, 3,189.00 ft); minimum observed since normal operating level reached, 45,350 acre-ft Sept. 28, 1960 (elevation, 3,162.90 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 121,847 acre-ft May 11 (elevation, 3,187.13 ft); minimum, 90,284 acre-ft Sept. 30 (elevation, 3,179.60 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents	†Diversions
Sept. 30	3182.89	103378		
Oct. 31	3184.22	108966	+5588	50
Nov. 30	3184.78	111370	+2404	
Dec. 31	3185.10	112757	+1387	
CAL YR 1982			+44937	
Jan. 31	3185.42	114156	+1399	
Feb. 28	3186.79	120289	+6133	
Mar. 31	3186.98	121158	+869	
Apr. 30	3187.10	121709	+551	373
May 31	3186.92	120883	-826	2596
June 30	3186.97	121112	+229	3259
July 31	3184.27	109179	-11933	13588
Aug. 31	3181.76	98763	-10416	13161
Sept. 30	3179.60	90284	-8479	7613
WTR YR 1983			-13094	

† Diversions from Angostura irrigation project.

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD

LOCATION.--Lat 43°20'42", long 103°26'12", in NE¼NW¼NW¼ sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120109, on right bank 800 ft downstream from Angostura Dam, 4.8 mi upstream from Fall River and 6.5 mi southeast of Hot Springs.

DRAINAGE AREA.--9,100 mi^2, approximately.

PERIOD OF RECORD.--October 1945 to current year, seasonal records only beginning October 1978. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1946(M). WDR SD-78-1: 1962(M), 1967(M), 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 3,058.02 ft National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 17, 1946, nonrecording gage and Oct. 17, 1946, to July 7, 1953, water-stage recorder at site 4.8 mi downstream at different datum.

REMARKS.--Records good. Flow regulated by Angostura Reservoir 800 ft upstream since October 1949 (see station 06401000).

AVERAGE DISCHARGE.--33 years (water years 1945-78), 78.5 ft^3/s (56,870 acre-ft/yr); median of yearly mean discharges, 52 ft^3/s (37,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,300 ft^3/s May 20, 1978 (gage height, 15.97 ft), from rating curve extended above 12,000 ft^3/s; no flow Oct. 9, 1949, to Feb. 5, 1950, Apr. 28, Aug. 26, 30, 1951.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 763 ft^3/s at 1100 hours, May 20 (gage height, 5.41 ft); minimum daily, 1.5 ft^3/s July 25-27, Aug. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	24	24	70	71	131	3.2	4.6	1.5	
2			---	24	24	70	73	62	2.8	2.8	1.5	
3			---	24	24	70	73	62	2.8	2.5	---	
4			---	24	24	70	144	34	2.8	2.2	---	
5			---	24	24	95	178	11	2.8	2.3	---	
6			---	24	24	119	175	2.7	2.7	2.2	---	
7			---	24	24	116	175	2.5	3.0	2.0	---	
8			---	24	24	110	166	27	2.7	1.9	---	
9			---	24	24	99	89	13	2.7	1.8	---	
10			---	24	24	97	59	2.3	2.7	1.6	---	
11			---	24	24	93	59	2.7	2.7	1.8	---	
12			---	23	24	91	59	218	2.7	1.6	---	
13			---	23	24	87	63	32	2.7	1.6	---	
14			---	23	24	89	65	2.7	2.7	1.6	---	
15			---	23	24	73	65	3.0	2.7	1.7	---	
16			---	23	24	47	68	2.5	2.7	1.7	---	
17			22	23	24	22	68	57	2.7	1.9	---	
18			25	23	24	43	68	97	2.7	1.7	---	
19			25	23	24	83	68	197	2.5	1.7	---	
20			25	23	24	136	68	564	2.7	1.8	---	
21			25	23	24	158	60	268	30	1.7	---	
22			25	24	24	99	57	284	116	1.9	---	
23			25	24	34	68	56	204	110	1.8	---	
24			25	24	59	68	66	105	114	1.6	---	
25			25	24	71	71	32	105	68	1.5	---	
26			24	24	71	91	2.2	97	2.5	1.5	---	
27			24	24	70	91	2.3	97	2.5	1.5	---	
28			24	24	70	78	2.2	44	2.5	1.6	---	
29			24	24	---	73	27	3.6	2.5	1.6	---	
30			24	24	---	71	66	3.4	2.5	1.6	---	
31			24	24	---	71	---	3.4	---	1.6	---	
TOTAL			---	734	903	2619	2224.7	2737.8	505.5	58.9	---	
MEAN			---	23.7	32.3	84.5	74.2	88.3	16.9	1.90	---	
MAX			---	24	71	158	178	564	116	4.6	---	
MIN			---	23	24	22	2.2	2.3	2.5	1.5	---	
AC-FT			---	1460	1790	5190	4410	5430	1000	117	---	

06402000 FALL RIVER AT HOT SPRINGS, SD

LOCATION.--Lat 43°25'50", long 103°28'33", in NW¼NW¼ sec.24, T.7 S., R.5 E., Fall River County, Hydrologic Unit 10120109, on left bank at intersection of River Street and University Avenue in Hot Springs and 6.0 mi upstream from mouth.

DRAINAGE AREA.--137 mi².

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for October 1937, published in WSP 1309.

REVISED RECORDS.--WSP 1279: 1938, 1941(M), 1947(M). WSP 1729: 1959(M).

GAGE.--Water-stage recorder. Datum of gage is 3,413.20 ft National Geodetic Vertical Datum of 1929. Prior to June 2, 1939, nonrecording gage at site 300 ft upstream at datum 3.00 ft higher.

REMARKS.--Records good except those for periods of no gage-height record, Oct. 1 to Feb. 16 and Apr. 22 to May 18, which are poor. Flow regulated by Coldbrook Reservoir, capacity, 7,200 acre-ft, beginning September 1952, and Cottonwood Springs Lake, capacity, 8,385 acre-ft since June 1969. Some diversion above station for municipal supply of Hot Springs. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--46 years, 21.0 ft³/s (18,040 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s Sept. 4, 1938 (gage height, 18.4 ft), site and datum then in use, from rating curve extended above 51 ft³/s on basis of weir formula and slope-area measurement of peak flow; minimum, 4.0 ft³/s Sept. 23, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 384 ft³/s at 1830 hours, June 19 (gage height, 3.60 ft); minimum daily, 14 ft³/s Sept. 16, 17, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	22	22	21	20	23	22	26	15	15	18	20
2	24	20	23	21	20	25	20	25	15	20	18	18
3	23	18	23	21	20	25	22	24	15	20	20	20
4	23	18	23	21	20	25	22	23	18	22	25	20
5	21	20	22	21	20	35	20	22	17	18	22	20
6	21	22	21	21	22	27	20	22	18	17	23	17
7	22	21	21	22	22	29	20	22	17	18	20	20
8	23	21	21	22	22	25	22	22	18	18	20	20
9	21	20	21	20	22	22	23	21	17	17	18	21
10	20	20	21	20	22	22	23	21	17	18	20	20
11	20	19	21	20	22	23	23	23	18	17	17	22
12	20	18	21	20	22	23	22	23	20	20	17	21
13	20	18	21	20	22	20	21	21	22	20	20	19
14	20	19	22	20	23	22	22	21	20	17	20	21
15	19	22	22	20	23	23	25	20	18	18	18	18
16	19	22	22	20	25	20	27	19	22	22	17	14
17	20	22	22	21	23	20	27	18	29	33	18	14
18	21	23	22	21	23	22	25	17	23	18	22	17
19	23	24	22	21	25	22	25	20	35	19	22	17
20	21	23	22	21	23	20	23	18	23	18	20	17
21	21	22	22	21	25	22	23	22	23	17	22	16
22	21	20	22	21	25	22	22	20	22	20	20	17
23	21	19	22	21	25	22	21	22	20	25	20	15
24	22	21	22	21	25	20	20	23	18	23	18	16
25	22	22	21	21	25	25	20	22	18	23	22	15
26	22	22	20	21	25	22	20	22	18	20	20	15
27	21	22	20	22	23	22	20	22	20	20	23	15
28	20	22	20	22	23	25	20	18	25	22	17	14
29	20	22	20	22	---	20	22	18	23	22	27	16
30	21	22	20	22	---	23	24	17	18	23	20	15
31	21	---	20	20	---	23	---	17	---	22	20	---
TOTAL	659	626	664	648	637	719	666	651	602	622	624	530
MEAN	21.3	20.9	21.4	20.9	22.8	23.2	22.2	21.0	20.1	20.1	20.1	17.7
MAX	26	24	23	22	25	35	27	26	35	33	27	22
MIN	19	18	20	20	20	20	20	17	15	15	17	14
AC-FT	1310	1240	1320	1290	1260	1430	1320	1290	1190	1230	1240	1050

CAL YR 1982 TOTAL 7787 MEAN 21.3 MAX 42 MIN 14 AC-FT 15450
WTR YR 1983 TOTAL 7648 MEAN 21.0 MAX 35 MIN 14 AC-FT 15170

06402500 BEAVER CREEK NEAR BUFFALO GAP, SD

LOCATION.--Lat 43°27'56", long 103°18'22", in SE¼SE¼ sec.5, T.7 S., R.7 E., Fall River County, Hydrologic Unit 10120109, on left bank 1.5 mi south of Buffalo Gap and 4.5 mi upstream from mouth.

DRAINAGE AREA.--130 mi^2, approximately.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for October, November, 1937, published in WSP 1309.

REVISED RECORDS.--WSP 956: 1941. WSP 1309: 1939-40(M), 1947(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,150 ft, from topographic map. Prior to June 20, 1939, nonrecording gage at site 0.8 mi downstream at different datum.

REMARKS.--Records good. Nearly all flow is diverted above station during irrigation season. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--46 years, 7.03 ft^3/s (5,090 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft^3/s Sept. 4, 1938 (gage height, 16.46 ft), site and datum then in use, from rating curve extended above 11 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1927 reached a stage of 18.0 ft, former site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12 ft^3/s at 1000 hours, Dec. 9 (gage height, 4.23 ft), no peak above base of 24 ft^3/s; minimum daily discharge, 0.27 ft^3/s Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	11	10	7.6	8.2	7.7	7.0	1.5	4.4	6.2	3.4	.49
2	9.5	11	9.6	7.6	8.2	7.6	6.3	1.8	2.6	6.1	3.5	.31
3	9.4	10	10	7.6	8.4	7.5	4.9	5.8	5.2	5.5	3.3	.29
4	9.4	10	10	7.8	8.4	7.5	5.5	3.4	3.6	5.4	2.3	.76
5	9.5	10	10	7.8	8.1	7.8	5.5	1.1	2.0	4.4	1.8	2.5
6	9.5	10	9.9	7.9	8.1	7.7	6.0	1.0	4.7	2.4	.58	3.2
7	9.5	10	10	8.3	8.0	7.6	5.2	1.0	5.9	.64	.46	3.5
8	9.8	10	9.8	8.2	8.0	7.5	4.9	.89	3.6	.57	.39	4.3
9	9.5	10	10	8.2	7.9	7.5	4.9	.84	5.2	.51	.38	4.5
10	9.5	10	9.7	8.2	7.9	7.4	4.7	.76	5.5	.43	.33	4.5
11	9.5	10	8.1	8.3	7.9	7.3	4.8	1.0	6.2	.42	.30	4.7
12	9.7	9.9	7.8	8.3	7.9	7.2	5.0	7.9	5.6	.46	.29	4.9
13	9.6	10	8.1	8.2	7.8	7.3	5.1	9.7	5.5	.37	.31	5.0
14	9.5	10	8.0	8.2	7.9	7.2	5.0	9.5	5.5	.33	.31	5.3
15	9.4	10	7.8	8.3	7.9	7.2	4.8	9.6	2.8	.30	.30	5.6
16	9.4	10	7.8	8.2	7.8	7.2	5.0	10	1.1	.36	.27	4.4
17	9.5	10	7.8	8.2	7.8	7.2	5.1	11	1.8	3.2	.28	4.3
18	9.5	10	7.8	8.2	7.8	7.4	5.0	11	2.7	4.2	.34	5.1
19	9.8	10	7.8	8.3	7.6	7.5	5.2	10	1.6	.90	.36	5.3
20	9.5	9.5	7.8	8.3	7.7	7.3	5.2	10	3.9	.68	.41	5.6
21	9.7	10	7.6	8.3	7.8	7.3	5.3	10	8.4	.60	.42	5.6
22	9.7	10	7.5	8.3	7.8	7.3	5.4	9.9	8.6	.63	.40	3.0
23	9.7	10	7.6	8.4	7.7	7.1	5.2	9.7	8.5	.79	.45	.74
24	9.7	10	7.6	8.4	7.7	7.1	4.8	9.6	8.5	.80	.42	.65
25	9.8	10	7.6	8.4	7.6	7.5	4.9	9.5	8.3	1.6	1.1	.60
26	9.7	10	7.6	8.4	7.8	7.5	5.5	5.0	8.7	3.2	3.7	.54
27	10	10	7.4	8.4	7.5	7.2	3.9	1.0	9.1	2.5	4.6	.52
28	9.9	10	7.4	8.4	7.8	7.3	1.2	.80	9.2	2.4	4.4	.52
29	10	10	7.6	8.4	---	7.2	1.2	.75	8.9	2.4	2.5	.55
30	10	10	7.7	8.4	---	7.3	2.0	2.1	7.7	2.4	2.2	.59
31	10	---	7.6	8.3	---	7.2	---	5.7	---	2.6	2.1	---
TOTAL	299.2	301.4	261.0	253.8	221.0	228.6	144.5	171.84	165.3	63.29	41.90	87.86
MEAN	9.65	10.0	8.42	8.19	7.89	7.37	4.82	5.54	5.51	2.04	1.35	2.93
MAX	10	11	10	8.4	8.4	7.8	7.0	11	9.2	6.2	4.6	5.6
MIN	9.4	9.5	7.4	7.6	7.5	7.1	1.2	.75	1.1	.30	.27	.29
AC-FT	593	598	518	503	438	453	287	341	328	126	83	174

CAL YR 1982 TOTAL 3301.78 MEAN 9.05 MAX 16 MIN .62 AC-FT 6550
WTR YR 1983 TOTAL 2239.69 MEAN 6.14 MAX 11 MIN .27 AC-FT 4440

06403300 FRENCH CREEK ABOVE FAIRBURN, SD

LOCATION.--Lat 43°43'02", long 103°22'03", in SW¼SW¼NE¼ sec.11, T.4 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 500 ft upstream from concrete diversion dam, 1.0 mi southwest of landing strip in Custer State Park, 1.5 mi west of east boundary of Custer State Park, 2.6 mi southwest of abandoned Fairview School, and 3.5 mi southeast of Custer State Park Headquarters.

DRAINAGE AREA.--105 mi², approximately.

PERIOD OF RECORD.--April 1982 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,850 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Stockade Reservoir, capacity, 1,820 acre-ft, 21 mi upstream. Several observations of water temperature and specific conductance were made.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 194 ft³/s June 24, 1982 (gage height, 2.21 ft); minimum daily, 0.97 ft³/s Aug. 17, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50 ft³/s at 0015 hours, May 5 (gage height, 1.49 ft); minimum daily, 0.97 ft³/s Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	12	2.5	2.1	1.3	5.9	14	14	10	9.4	3.2	1.2
2	20	11	2.4	1.9	1.3	7.1	11	13	9.8	8.5	3.2	1.2
3	19	11	2.2	2.1	1.4	7.1	8.9	13	11	7.0	4.6	1.0
4	18	11	2.1	2.3	1.4	7.1	8.8	29	13	6.1	5.1	1.4
5	18	12	1.9	2.4	1.5	9.2	8.4	33	14	5.0	4.6	4.3
6	18	10	1.5	2.5	2.1	11	7.3	24	13	4.4	7.1	4.3
7	18	9.9	1.3	2.3	2.8	8.7	6.4	21	13	3.7	8.7	4.3
8	19	9.6	1.7	2.3	4.0	7.6	6.6	17	11	3.4	5.4	4.8
9	16	9.6	1.9	2.0	6.5	6.0	7.6	20	18	3.1	4.6	4.8
10	8.5	9.4	1.7	1.7	3.9	7.1	10	22	14	2.8	3.0	5.1
11	7.3	9.4	1.8	1.9	3.2	6.7	13	22	20	2.4	2.0	5.1
12	6.5	9.6	2.0	2.1	3.6	7.6	16	22	18	2.4	1.6	5.4
13	6.2	11	2.1	2.3	3.3	11	15	21	15	2.3	1.3	6.0
14	6.1	18	1.8	2.1	3.5	10	11	22	12	2.1	1.2	6.0
15	6.0	25	1.9	1.8	3.8	9.5	8.4	21	11	1.4	1.1	6.0
16	7.0	16	2.2	1.8	5.2	8.6	8.1	15	9.4	1.1	1.0	6.0
17	12	10	2.3	1.5	3.3	7.4	8.1	14	12	1.7	.97	6.4
18	12	8.3	2.2	1.7	3.6	7.5	9.2	14	27	1.6	2.3	6.0
19	12	4.9	2.3	1.9	3.9	14	9.2	13	22	5.7	2.8	6.0
20	12	3.7	2.4	1.7	5.2	12	11	12	19	3.6	2.5	6.7
21	12	3.0	2.5	1.5	7.3	9.2	12	14	18	2.6	2.1	7.9
22	12	3.5	2.5	1.3	4.7	8.5	11	16	15	2.2	4.1	7.9
23	11	3.5	2.4	1.5	5.2	5.9	12	15	12	1.9	4.1	8.7
24	11	4.8	2.2	1.7	5.5	5.3	13	13	11	1.7	4.6	8.7
25	11	3.8	2.1	1.5	8.6	7.7	11	12	9.4	1.7	3.2	9.2
26	12	4.9	2.0	1.3	6.4	10	11	12	8.5	1.5	2.3	9.2
27	12	4.6	1.9	1.8	5.7	9.2	9.2	11	9.0	1.6	2.0	9.6
28	12	3.4	1.8	1.6	6.0	7.3	8.3	11	10	2.0	1.6	11
29	12	3.2	1.8	1.5	---	7.3	8.7	10	11	1.5	1.4	11
30	11	2.7	2.1	1.4	---	7.9	11	9.1	10	5.7	1.4	11
31	11	---	2.3	1.4	---	11	---	8.9	---	4.6	1.3	---
TOTAL	391.6	258.8	63.8	56.9	114.2	260.4	305.2	514.0	406.1	104.7	94.37	186.2
MEAN	12.6	8.63	2.06	1.84	4.08	8.40	10.2	16.6	13.5	3.38	3.04	6.21
MAX	23	25	2.5	2.5	8.6	14	16	33	27	9.4	8.7	11
MIN	6.0	2.7	1.3	1.3	1.3	5.3	6.4	8.9	8.5	1.1	.97	1.0
AC-FT	777	513	127	113	227	517	605	1020	805	208	187	369

WTR YR 1983 TOTAL 2756.27 MEAN 7.55 MAX 33 MIN .97 AC-FT 5470

06404000 BATTLE CREEK NEAR KEYSTONE, SD

LOCATION.--Lat 43°52'21", long 103°20'10", in SW¼SW¼ sec.18, T.2 S., R.7 E., Pennington County, Hydrologic Unit 10120109, at right downstream end county highway bridge, 0.6 mi downstream from Iron Creek and 4.5 mi southeast of Keystone.

DRAINAGE AREA.--66 mi^2.

PERIOD OF RECORD.--July 1945 to July 1947, October 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,800 ft, from topographic map. Prior to Nov. 13, 1961, nonrecording gage at site 250 ft downstream at different datum and Nov. 13 to Dec. 5, 1961, at same site at present datum. Dec. 6, 1961, to June 9, 1972, water-stage recorder at site 210 ft downstream at present datum (destroyed by flood); June 10 to Nov. 20, 1972, nonrecording gage 180 ft downstream at present datum; Nov. 21, 1972, to Nov. 27, 1973, water-stage recorder at present site and datum; Nov. 28, 1973, to Nov. 7, 1974, nonrecording gage 180 ft downstream at present datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--23 years (water years 1946, 1962-83), 9.19 ft^3/s (6,660 acre-ft/yr); median of yearly mean discharges, 6.8 ft^3/s (4,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,200 ft^3/s June 9, 1972 (gage height, 14.5 ft), from floodmarks, site then in use, from rating curve extended above 550 ft^3/s on basis of slope-area measurement of peak flow; no flow for many days in 1961, 1962, 1970, 1974, 1976, 1980, 1981, 1982, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 80 ft^3/s at 1030 hours, May 7 (gage height, 4.12 ft), no other peak above base of 100 ft^3/s; no flow Aug. 30 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	3.8	2.5	1.6	1.0	2.2	5.0	10	7.3	5.2	.65	.00
2	4.9	3.5	2.6	1.4	.90	2.2	4.4	9.4	7.1	4.5	1.2	.00
3	3.6	3.1	2.5	1.2	.80	2.4	4.1	9.0	7.3	4.1	1.6	.00
4	2.8	2.5	2.3	1.2	.90	2.3	3.6	9.9	7.0	3.5	1.2	.00
5	2.5	2.6	2.3	1.2	.80	2.8	3.8	9.8	6.5	3.4	1.1	.00
6	2.5	2.9	2.0	1.3	.70	3.2	3.5	11	6.3	3.0	.88	.00
7	2.5	2.8	1.5	1.4	.72	2.6	3.4	56	5.7	2.6	.57	.00
8	3.2	2.7	1.7	1.6	.74	2.4	3.5	43	6.3	2.4	.33	.00
9	8.1	2.7	2.0	1.5	.77	2.0	4.2	32	13	2.1	.20	.00
10	15	2.6	1.9	1.4	.86	2.1	5.1	25	9.8	1.8	.13	.00
11	12	2.6	1.7	1.6	1.0	2.3	6.0	22	7.7	1.4	.10	.00
12	8.8	2.8	1.5	1.9	1.1	2.6	6.7	25	8.3	1.2	.06	.00
13	7.2	2.4	1.7	1.7	1.2	2.6	5.8	24	7.7	1.1	.28	.00
14	6.0	3.3	1.7	1.5	1.4	2.6	4.7	21	6.6	.89	.45	.00
15	5.4	2.8	1.6	1.5	1.6	2.5	5.2	20	5.8	.73	.18	.00
16	4.6	2.7	1.8	1.4	1.8	2.3	4.9	18	6.4	1.1	.18	.00
17	4.9	2.4	2.0	1.3	1.9	2.3	5.0	18	17	2.2	.17	.00
18	4.2	2.5	2.0	1.2	2.0	2.2	5.8	17	18	2.5	.15	.00
19	3.7	2.7	2.0	1.2	2.1	2.2	6.5	16	14	1.7	.16	.00
20	3.2	3.0	1.7	1.1	2.1	2.5	6.9	15	12	1.2	.15	.00
21	3.1	2.5	1.8	1.0	2.0	2.5	6.8	14	9.7	.91	.12	.00
22	3.0	2.3	2.0	1.0	2.1	2.7	7.2	13	8.1	.68	.86	.00
23	3.1	2.4	1.8	1.1	2.0	2.5	7.2	12	7.0	.75	.51	.00
24	3.3	2.3	1.6	1.1	1.9	2.7	6.8	11	6.2	.87	.40	.00
25	3.0	2.1	1.5	1.0	2.0	3.0	6.7	10	5.3	.77	.22	.00
26	3.2	1.9	1.4	.90	1.8	3.2	6.5	9.6	5.6	.61	.15	.00
27	3.1	2.1	1.4	1.0	2.1	3.2	6.3	9.3	6.6	.60	.11	.00
28	4.4	2.3	1.5	1.1	2.3	3.0	6.2	9.5	6.5	.60	.06	.00
29	5.0	2.4	1.5	1.1	---	3.0	7.1	8.8	5.9	.75	.02	.00
30	4.6	2.4	1.5	1.0	---	3.4	8.3	7.3	5.4	1.1	.00	.00
31	4.1	---	1.6	1.0	---	4.8	---	7.6	---	.99	.00	---
TOTAL	150.4	79.1	56.6	39.50	40.59	82.3	167.2	523.2	246.1	55.25	12.19	.00
MEAN	4.85	2.64	1.83	1.27	1.45	2.65	5.57	16.9	8.20	1.78	.39	.000
MAX	15	3.8	2.6	1.9	2.3	4.8	8.3	56	18	5.2	1.6	.00
MIN	2.5	1.9	1.4	.90	.70	2.0	3.4	7.3	5.3	.60	.00	.00
AC-FT	298	157	112	78	81	163	332	1040	488	110	24	.00

CAL YR 1982 TOTAL 2518.24 MEAN 6.90 MAX 66 MIN .30 AC-FT 4990
WTR YR 1983 TOTAL 1452.43 MEAN 3.98 MAX 56 MIN .00 AC-FT 2880

06404998 GRACE COOLIDGE CREEK NEAR GAME LODGE, NEAR CUSTER, SD

LOCATION.--Lat 43°45'40", long 103°21'49", in SW¼NE¼ sec.26, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 0.3 mi downstream from bridge on U.S. Highway 16A, 0.9 mi east of Game Lodge, 1.5 mi southwest of junction of State Highway 36 and U.S. Highway 16A, and 11.5 mi east of Custer.

DRAINAGE AREA.--25.2 mi².

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,100 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Considerable losses in sinkholes downstream from gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 3.25 ft³/s (2,350 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 370 ft³/s May 18, 1981 (gage height, 9.49 ft); maximum gage height, 12.76 ft Feb. 9, 1979 (backwater from ice); no flow June 5-9, July 6, 8, 11, 19, 1977, for part of June 14, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1972, reached a stage of 10.35 ft, from floodmarks, discharge, 709 ft³/s from slope-area measurement of peak flow.
Flood of June 15, 1976, reached a stage of 10.90 ft, from floodmarks, discharge, 980 ft³/s on basis of slope-area measurement of 10.35 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16 ft³/s at 1400 hours, May 7 (gage height, 7.58 ft), no peak above base of 25 ft³/s; maximum gage height, 7.85 ft Nov. 23 (backwater from ice); minimum daily discharge, 0.18 ft³/s Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	3.3	1.9	1.4	1.2	.95	2.2	5.0	5.0	3.2	1.1	.29
2	5.3	3.4	1.9	1.4	1.1	.95	2.1	4.5	5.2	2.8	1.1	.26
3	4.3	3.3	1.6	1.4	1.1	1.0	2.0	4.6	5.4	2.6	1.4	.24
4	4.0	2.9	1.9	1.3	1.1	1.1	2.2	4.9	5.0	2.6	1.3	.26
5	3.8	2.7	1.9	1.2	1.1	1.2	2.4	4.6	4.8	2.3	1.7	.32
6	3.7	2.8	1.7	1.3	1.0	1.4	2.2	4.6	4.5	2.2	1.8	.28
7	3.5	2.9	1.3	1.2	1.1	1.2	2.5	13	4.2	2.0	1.3	.21
8	4.3	2.7	1.8	1.2	1.1	1.3	2.2	12	4.1	1.8	1.2	.19
9	5.9	2.7	2.0	1.1	1.1	1.4	2.4	11	5.3	1.7	1.0	.19
10	6.7	2.6	2.1	1.4	1.1	1.3	2.7	9.3	4.3	1.5	.84	.22
11	5.7	2.6	1.8	1.2	1.1	1.2	3.2	8.9	4.1	1.5	.84	.20
12	4.9	1.9	1.7	1.3	1.1	1.2	3.4	11	4.5	1.3	.72	.18
13	4.8	2.2	1.8	1.2	1.2	1.3	3.1	11	4.4	1.3	.68	.20
14	4.6	2.3	1.9	1.1	1.1	1.3	3.0	9.5	3.7	1.3	.57	.23
15	4.2	2.3	1.7	1.2	1.1	1.3	2.6	9.2	3.2	1.2	.53	.24
16	3.8	2.1	1.6	1.2	1.1	1.3	2.8	9.2	3.1	1.1	.60	.24
17	3.8	2.2	1.8	1.2	1.1	1.4	2.9	11	6.6	2.9	.67	.20
18	3.8	2.2	1.8	1.2	.95	1.2	2.9	9.6	7.2	2.7	.77	.20
19	3.7	2.2	1.6	1.1	.95	1.0	3.1	9.3	5.5	2.0	.59	.23
20	3.7	2.3	1.6	1.1	.95	1.3	3.4	8.3	6.2	1.6	.69	.27
21	3.7	2.3	1.6	1.0	.90	1.4	3.5	8.3	5.1	1.6	.58	.31
22	3.7	2.1	1.6	1.0	.95	1.4	3.5	7.7	4.5	1.7	.76	.33
23	3.5	2.0	1.6	1.1	.95	1.5	3.7	7.3	3.7	1.8	.70	.35
24	3.5	1.9	1.5	1.1	.95	1.6	3.3	6.8	3.0	1.8	.59	.37
25	3.5	1.9	1.4	1.0	.90	1.4	3.3	6.2	2.5	1.7	.60	.35
26	3.5	1.8	1.6	1.1	.90	1.0	3.1	5.6	2.7	1.5	.55	.34
27	3.4	1.7	1.7	1.2	.95	1.5	3.0	5.7	2.9	1.5	.50	.36
28	3.7	1.7	1.7	1.2	.95	1.7	3.0	5.8	3.2	1.5	.43	.36
29	3.0	1.8	1.5	1.1	---	1.7	3.5	5.1	3.4	1.4	.38	.40
30	3.0	1.9	1.5	1.0	---	1.9	4.1	4.5	3.3	1.4	.35	.48
31	3.0	---	1.4	1.1	---	2.3	---	5.0	---	1.2	.35	---
TOTAL	127.9	70.7	52.5	36.6	29.10	41.70	87.3	238.5	130.6	56.7	25.19	8.30
MEAN	4.13	2.36	1.69	1.18	1.04	1.35	2.91	7.69	4.35	1.83	.81	.28
MAX	6.7	3.4	2.1	1.4	1.2	2.3	4.1	13	7.2	3.2	1.8	.48
MIN	3.0	1.7	1.3	1.0	.90	.95	2.0	4.5	2.5	1.1	.35	.18
AC-FT	254	140	104	73	58	83	173	473	259	112	50	16

CAL YR 1982 TOTAL 1623.86 MEAN 4.45 MAX 39 MIN .68 AC-FT 3220
WTR YR 1983 TOTAL 905.09 MEAN 2.48 MAX 13 MIN .18 AC-FT 1800

06406000 BATTLE CREEK AT HERMOSA, SD

LOCATION.--Lat 43°49'41", long 103°11'44", in NE¼SW¼SW¼ sec.32, T.2 S., R.8 E., Custer County, Hydrologic Unit 10120109, on right bank 50 ft downstream from Chicago and North Western Transportation Company bridge, 0.8 mi south of Hermosa and 2.9 mi downstream from Grace Coolidge Creek.

DRAINAGE AREA.--178 mi².

PERIOD OF RECORD.--August to December 1903 (gage heights only), July 1949 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,290 ft, from topographic map. Nonrecording gage, August to December 1903, at site 50 ft upstream, July 7, 1949, to Nov. 2, 1950, at site 0.5 mi upstream, Nov. 3, 1950, to Dec. 6, 1961, at site 170 ft downstream, all at different datum. Dec. 7, 1961, to June 10, 1972, water-stage recorder (destroyed by flood), and June 11, 1972, to Aug. 28, 1972, nonrecording gage at site 80 ft downstream at present datum.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 9.06 ft³/s (6,560 acre-ft/yr); median of yearly mean discharges, 6.2 ft³/s (4,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft³/s June 10, 1972 (gage height, 17.72 ft), from floodmarks, from rating curve extended above 2,800 ft³/s on basis of contracted-opening and flow-over-railroad embankment measurement of peak flow; no flow at times in 1954-57, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29 ft³/s at 0100 hours, May 8 (gage height, 3.05 ft), no peak above base of 150 ft³/s; minimum daily discharge, 2.3 ft³/s Aug. 29, Sept. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	9.4	7.4	6.4	5.0	4.7	5.4	5.7	8.7	8.0	8.8	5.4
2	7.5	9.4	7.7	6.3	5.7	4.6	5.2	5.2	8.8	7.7	8.4	3.2
3	6.4	9.6	7.5	6.2	4.7	4.8	5.4	4.8	9.0	7.8	9.5	2.7
4	6.8	9.7	6.9	6.3	4.9	4.9	5.7	4.4	9.1	7.9	12	3.5
5	7.0	9.8	6.5	6.3	5.3	5.3	5.7	4.5	9.0	7.6	11	4.9
6	8.0	9.5	6.4	6.3	5.1	5.5	5.7	5.1	8.9	6.2	9.3	4.5
7	8.2	9.3	6.0	5.9	5.2	5.1	5.8	7.0	8.6	6.1	8.0	4.1
8	8.6	8.9	6.2	5.9	5.3	5.0	5.7	26	8.2	5.7	6.6	3.5
9	9.3	8.6	6.4	5.9	5.3	4.7	5.7	19	7.7	5.3	8.4	2.4
10	11	8.7	6.9	5.6	5.2	4.8	5.6	15	7.2	5.0	7.0	2.3
11	9.5	8.4	6.8	5.9	5.2	4.7	5.7	13	7.3	5.5	4.2	2.3
12	9.4	8.2	6.9	5.7	5.3	4.5	5.8	15	7.6	6.1	2.9	2.6
13	9.1	8.2	7.7	5.7	5.5	4.4	6.0	15	7.9	4.8	2.6	3.8
14	9.1	8.3	7.6	5.5	5.3	4.4	5.9	14	7.5	5.0	2.7	3.8
15	8.6	8.5	7.3	5.3	5.0	4.5	5.8	13	7.3	4.6	4.8	3.7
16	8.9	8.2	7.2	5.4	4.8	4.4	5.7	12	7.5	5.9	4.9	3.6
17	9.1	8.3	7.4	5.4	4.6	4.4	5.6	12	9.2	8.0	6.0	3.4
18	8.7	8.1	7.6	5.6	4.5	5.3	5.6	12	9.2	8.2	7.1	3.1
19	9.0	8.2	7.3	5.4	4.5	5.7	5.7	11	8.2	9.3	7.8	3.1
20	9.4	8.2	7.3	5.4	4.2	5.5	5.4	11	8.0	11	7.1	3.6
21	9.3	8.2	7.4	5.4	4.3	5.5	5.4	11	7.9	12	6.2	3.7
22	9.5	8.0	7.1	5.5	4.3	5.4	5.4	10	7.3	12	6.4	4.0
23	9.5	7.8	6.8	5.5	4.2	5.4	5.5	9.8	7.1	13	6.0	4.1
24	9.5	8.1	6.6	5.7	4.1	5.4	5.1	9.6	7.0	14	5.1	4.1
25	9.5	8.1	6.0	5.4	4.1	5.7	4.2	9.0	6.9	14	4.0	4.1
26	9.3	8.3	6.0	5.2	4.3	5.9	4.1	9.1	7.3	13	3.1	3.9
27	9.9	8.4	6.4	5.3	4.5	5.6	4.8	8.7	7.5	14	2.9	3.8
28	9.5	8.0	6.3	5.3	4.8	5.5	4.0	8.6	8.3	12	2.6	3.8
29	9.5	7.8	6.4	5.1	---	5.5	4.2	8.4	8.7	11	2.3	3.6
30	9.8	7.2	6.4	4.9	---	5.5	4.6	8.5	8.6	10	2.5	3.8
31	9.7	---	6.4	4.9	---	5.5	---	8.7	---	9.8	3.5	---
TOTAL	276.8	255.4	212.8	174.6	135.2	158.1	160.4	326.1	241.5	270.5	183.7	108.4
MEAN	8.93	8.51	6.86	5.63	4.83	5.10	5.35	10.5	8.05	8.73	5.93	3.61
MAX	11	9.8	7.7	6.4	5.7	5.9	6.0	26	9.2	14	12	5.4
MIN	6.4	7.2	6.0	4.9	4.1	4.4	4.0	4.4	6.9	4.6	2.3	2.3
AC-FT	549	507	422	346	268	314	318	647	479	537	364	215

CAL YR 1982 TOTAL 2926.5 MEAN 8.02 MAX 45 MIN 1.4 AC-FT 5800
WTR YR 1983 TOTAL 2503.5 MEAN 6.86 MAX 26 MIN 2.3 AC-FT 4970

06408500 SPRING CREEK NEAR HERMOSA, SD

LOCATION.--Lat 43°56'31", long 103°09'32", in SE¼SE¼SE¼ sec.21, T.1 S., R.8 E., Pennington County, Hydrologic Unit 10120109, at left upstream end of county highway bridge, 0.3 mi upstream from Chicago and North Western Transportation Company bridge and 7.5 mi north of Hermosa.

DRAINAGE AREA.--199 mi².

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 1729: 1950.

GAGE.--Water-stage recorder. Datum of gage is 3,265.30 ft National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1973, nonrecording gage and crest-stage gage 210 ft upstream, and Mar. 30 to Sept. 30, 1973, water-stage recorder at present site, both at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor. Considerable loss in sinkholes in reach 10 to 15 mi above station. Flow slightly regulated by Lake Sheridan, capacity, 12,657 acre-ft, 24 mi above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 5.05 ft³/s (3,660 acre-ft/yr); median of yearly mean discharges, 1.5 ft³/s (1,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s June 10, 1972 (gage height, 13.12 ft), site and datum then in use, from floodmarks, from rating curve extended above 350 ft³/s on basis of contracted-opening measurement of peak flow; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 189 ft³/s at 0245 hours, May 7 (gage height, 4.30 ft); minimum daily, 0.13 ft³/s May 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	1.8	1.3	1.4	1.2	1.4	1.1	.75	.43	6.4	1.7	9.8
2	1.6	1.8	1.3	1.3	1.1	1.4	1.0	.64	.46	4.3	1.8	9.5
3	1.3	1.8	1.1	1.4	1.1	1.3	1.0	.37	.38	3.5	1.6	8.0
4	1.3	1.8	1.1	1.4	1.1	1.3	1.1	.30	.54	2.6	1.5	6.9
5	1.3	1.7	1.2	1.5	1.1	1.4	1.0	.24	.55	2.8	1.3	6.1
6	1.3	1.9	1.3	1.6	1.1	1.4	1.0	.30	.48	2.8	1.0	4.6
7	1.4	1.9	1.4	1.6	1.2	1.2	1.0	37	.28	3.1	.67	2.5
8	1.6	1.6	1.4	1.6	1.2	1.1	1.0	1.8	.28	2.6	.52	2.1
9	9.9	1.6	1.8	1.5	1.2	1.1	1.0	1.1	.33	2.1	.67	3.5
10	11	1.7	1.6	1.4	1.2	1.1	1.0	1.4	.31	1.6	.41	2.4
11	2.8	1.8	1.5	1.4	1.3	1.1	1.0	1.8	.21	1.4	1.1	2.1
12	2.2	1.8	1.5	1.6	1.3	1.1	1.0	2.6	.44	1.6	1.5	1.5
13	2.0	1.4	1.5	1.7	1.4	1.1	1.3	3.4	.53	1.9	2.6	1.3
14	1.9	1.4	1.5	1.6	1.3	1.0	1.1	.70	.69	2.0	3.6	.92
15	1.8	1.4	1.4	1.6	1.0	1.1	1.0	.41	1.0	1.6	2.5	1.6
16	1.7	1.4	1.5	1.6	1.1	1.0	1.3	.30	1.3	2.0	3.5	1.9
17	1.8	1.5	1.8	1.4	1.1	1.0	1.2	.24	1.9	2.2	3.7	1.6
18	1.7	1.5	1.7	1.5	1.3	1.1	1.2	.24	2.9	2.2	2.6	1.3
19	1.6	1.6	1.7	1.5	1.3	1.3	1.1	.18	5.8	2.0	4.1	1.1
20	1.8	1.6	1.7	1.6	1.0	1.1	.94	.13	8.4	1.8	3.2	1.0
21	1.6	1.1	1.7	1.5	1.1	1.0	.87	.37	9.4	1.8	1.1	1.1
22	1.4	1.0	1.8	1.5	1.3	1.0	.75	.45	9.2	2.0	4.0	1.1
23	1.7	1.1	1.7	1.5	1.3	1.1	.75	.86	9.1	2.0	1.6	.87
24	1.6	1.1	1.5	1.4	1.1	1.1	.65	1.5	13	2.1	3.5	.75
25	1.6	1.1	1.5	1.2	1.3	1.1	.64	1.4	11	2.0	3.6	1.1
26	1.7	1.1	1.4	1.2	1.3	1.3	.54	1.2	8.2	1.6	2.7	1.0
27	1.9	1.4	1.1	1.4	1.3	1.1	.45	.96	7.1	2.0	2.6	1.6
28	1.8	1.5	1.1	1.4	1.4	1.0	.37	.87	6.9	1.8	3.1	1.6
29	1.5	1.5	1.1	1.4	---	1.0	.37	.65	8.0	2.2	3.6	2.0
30	1.8	1.5	1.1	1.2	---	1.1	.45	.60	7.3	3.1	5.0	2.2
31	1.8	---	1.4	1.2	---	1.4	---	.55	---	2.1	7.9	---
TOTAL	70.7	45.4	44.7	45.1	33.7	35.8	27.18	63.31	116.41	73.2	78.27	83.04
MEAN	2.28	1.51	1.44	1.45	1.20	1.15	.91	2.04	3.88	2.36	2.52	2.77
MAX	11	1.9	1.8	1.7	1.4	1.4	1.3	37	13	6.4	7.9	9.8
MIN	1.3	1.0	1.1	1.2	1.0	1.0	.37	.13	.21	1.4	.41	.75
AC-FT	140	90	89	89	67	71	54	126	231	145	155	165

CAL YR 1982 TOTAL 396.58 MEAN 1.09 MAX 43 MIN .00 AC-FT 787
WTR YR 1983 TOTAL 716.81 MEAN 1.96 MAX 37 MIN .13 AC-FT 1420

06408700 RHOADS FORK NEAR ROCHFORD, SD

LOCATION.--Lat 44°08'12", long 103°51'29", in NW¼SE¼NE¼ sec.15, T.2 N., R.2 E., Pennington County, Hydrologic Unit 10120110, on left bank 1.1 mi upstream from South Fork Rapid Creek and 8.7 mi west of Rochford.

DRAINAGE AREA.--7.95 mi^2, approximately.

PERIOD OF RECORD.--November 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,965 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8.9 ft^3/s June 23, 1982 (gage height, 2.17 ft); maximum gage height, 2.19 ft July 23 (backwater from vegetation); minimum daily discharge, 3.5 ft^3/s Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7.8 ft^3/s at 0030 hours, Aug. 22 (gage height, 2.09 ft); maximum gage height, 2.13 ft July 1 (backwater from vegetation); minimum daily discharge, 4.6 ft^3/s Mar. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	5.7	6.2	5.9	5.3	4.9	4.7	5.5	6.2	6.8	6.7	6.0
2	6.1	6.0	6.2	5.9	5.3	4.9	4.7	5.5	6.1	7.0	6.7	6.0
3	6.1	5.2	6.2	5.8	5.3	4.9	4.8	5.5	6.1	6.8	6.7	5.8
4	6.1	5.2	6.2	5.8	5.1	4.9	4.9	5.5	6.1	6.8	6.7	5.8
5	6.0	5.3	6.2	5.8	5.1	4.9	4.9	5.8	6.0	6.6	6.7	5.9
6	6.0	5.2	6.2	5.8	5.1	4.8	4.8	5.9	6.0	6.2	6.6	6.0
7	6.0	5.4	6.2	5.6	5.1	4.8	4.8	6.1	5.9	6.1	6.5	6.0
8	5.8	5.3	6.1	5.5	5.0	4.8	4.8	6.1	5.9	6.2	6.5	6.2
9	5.8	5.5	6.0	5.5	5.1	4.8	4.9	6.1	6.0	6.1	6.5	6.1
10	5.6	5.4	6.0	5.5	5.0	4.8	4.9	6.4	5.9	6.4	6.5	6.1
11	5.6	5.1	6.0	5.5	5.1	4.8	5.0	6.5	5.9	6.3	6.6	6.1
12	5.8	5.0	6.0	5.5	5.0	4.9	4.9	6.4	5.8	6.2	6.7	6.2
13	5.6	5.0	6.0	5.5	5.1	4.8	4.9	6.4	5.6	6.2	6.8	6.1
14	6.0	5.0	6.0	5.5	5.0	4.8	4.8	6.2	5.6	6.5	6.7	6.2
15	6.3	5.0	6.0	5.5	5.0	4.8	4.9	6.4	5.6	6.6	6.6	6.2
16	6.3	5.4	5.9	5.6	5.0	4.8	5.0	6.4	5.6	6.5	6.8	6.3
17	6.0	5.4	5.8	5.5	5.0	4.8	5.0	6.4	5.4	6.7	6.7	6.3
18	6.1	5.4	5.8	5.5	5.0	4.8	5.0	6.4	5.6	6.6	6.6	6.4
19	5.8	5.5	5.8	5.5	5.0	4.7	5.1	6.3	5.6	6.5	6.9	6.4
20	5.8	5.7	5.8	5.5	5.0	4.7	5.2	6.3	5.6	6.6	6.9	6.5
21	5.9	5.6	5.8	5.6	4.9	4.6	5.2	6.3	5.6	6.6	6.9	6.5
22	6.1	5.5	5.6	5.6	5.0	4.6	5.2	6.4	5.6	6.4	7.1	6.6
23	5.6	5.5	5.8	5.7	5.0	4.7	5.2	6.3	5.6	6.4	6.9	6.6
24	5.4	5.5	5.8	5.7	5.0	4.8	5.2	6.3	5.8	6.5	6.9	6.6
25	5.4	5.6	5.8	5.5	5.0	4.7	5.3	6.4	5.8	6.5	6.9	6.6
26	5.5	5.7	5.8	5.5	4.9	4.7	5.3	6.3	5.8	6.6	6.7	6.7
27	6.0	5.8	5.8	5.4	4.9	4.7	5.3	6.3	6.2	6.7	6.7	6.8
28	6.1	5.9	5.8	5.4	4.9	4.7	5.2	6.2	6.3	6.7	6.5	6.9
29	5.7	5.9	5.9	5.4	---	4.7	5.2	6.3	6.3	6.6	6.4	6.9
30	5.6	6.0	5.9	5.4	---	4.7	5.5	6.3	6.3	6.7	6.1	7.1
31	5.7	---	5.9	5.4	---	4.7	---	6.2	---	6.7	6.2	---
TOTAL	181.9	163.7	184.7	172.8	141.2	148.0	150.6	191.4	175.8	202.1	206.7	189.9
MEAN	5.87	5.46	5.96	5.57	5.04	4.77	5.02	6.17	5.86	6.52	6.67	6.33
MAX	6.3	6.0	6.2	5.9	5.3	4.9	5.5	6.5	6.3	7.0	7.1	7.1
MIN	5.4	5.0	5.8	5.4	4.9	4.6	4.7	5.5	5.4	6.1	6.1	5.8
AC-FT	361	325	366	343	280	294	299	380	349	401	410	377

CAL YR 1982 TOTAL 1860.0 MEAN 5.10 MAX 7.1 MIN 3.5 AC-FT 3690
WTR YR 1983 TOTAL 2106.8 MEAN 5.78 MAX 7.1 MIN 4.6 AC-FT 4180

06408700 RHOADS FORK NEAR ROCHFORD, SD--Continued

RAINFALL, ACCUMULATED (INCHES), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.00	.16	.00	.00	.00	.05	.00	.00	.00	.00	.00
2	.00	.00	.06	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.05	.00	.00	.10	.00	.00	.03	.03	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.10	.06	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00
6	.00	.00	.26	.00	.00	.00	.00	1.05	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.34	.00	.00	.00	.00
8	.50	.00	.00	.00	.00	.00	.00	.08	.40	.28	.00	.00
9	1.25	.00	.00	.90	.00	.00	.00	.00	.00	.00	.00	.00
10	.30	.00	.00	.30	.00	.00	.00	.00	.10	.00	.00	.00
11	.00	.05	.00	.00	.00	.00	.40	.40	.00	.10	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	1.20	.00
13	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00	.00	.10
14	.00	.00	.05	.00	.05	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.35	.00	.00	.00
17	.00	.00	.12	.00	.00	.00	.00	.00	.15	.00	.00	.00
18	.00	.00	.16	.00	.00	.00	.00	.03	.00	.00	.00	.00
19	.00	.20	.00	.00	.00	.00	.00	.14	.00	.40	.50	.05
20	.00	.00	.00	.00	.00	.36	.00	.10	.00	.08	.50	.00
21	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	1.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.10	.14	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00
27	.15	.00	.00	.00	.00	.00	.00	.08	.00	.38	.00	.00
28	.50	.00	.00	.00	.00	.24	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.23	.00	.00	.00	.00	.00
30	.00	.00	.00	.10	---	.10	.20	.00	.25	.30	.00	.28
31	.00	---	.00	.00	---	.00	---	.08	---	.05	.00	---

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD
(Hydrologic benchmark and radiochemical station)

LOCATION.--Lat 44°00'49", long 103°49'48", in SW¼ sec.25, T.1 N., R.2 E., Pennington County, Hydrologic Unit 10120110, on right bank 150 ft upstream from highway culvert, 20 ft downstream from South Fork Castle Creek, 800 ft upstream from high-water line of Deerfield Reservoir, 2.5 mi southwest of Deerfield Dam, and 14 mi northwest of Hill City.

DRAINAGE AREA.--83 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1948 to current year. Prior to October 1953, published as "above Deerfield Reservoir, near Deerfield".

REVISED RECORDS.--WSP 1917: 1952(M).

GAGE.--Water-stage recorder. Altitude of gage is 5,910 ft, from reservoir elevation. Prior to Aug. 31, 1948, nonrecording gage at site 50 ft upstream at datum 2.05 ft higher.

REMARKS.--Records good except those for winter periods, which are poor.

AVERAGE DISCHARGE.--35 years, 10.4 ft³/s (7,530 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft³/s May 22, 1952 (gage height, 5.81 ft), from rating curve extended above slope-area measurement at gage height, 5.67 ft; minimum, 1.2 ft³/s Apr. 25, 1969; minimum gage height, 1.35 ft Nov. 12, 1949, Feb. 19, 1954, Mar. 7, 1957, Mar. 29, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87 ft³/s at 1345 hours, Aug. 3 (gage height, 5.84 ft); no peak above base of 100 ft³/s; minimum daily, 5.6 ft³/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	17	9.6	12	12	11	21	23	20	17	14	13
2	12	14	8.6	12	11	13	19	23	19	16	13	13
3	12	14	9.0	12	12	13	19	22	19	16	16	13
4	12	14	9.8	11	12	15	19	22	19	16	16	16
5	12	14	9.6	12	11	15	18	22	19	16	15	15
6	11	15	9.6	13	12	12	19	22	19	15	14	14
7	11	16	9.0	13	11	8.4	17	26	18	15	25	14
8	11	16	8.0	12	11	9.0	18	25	19	15	15	14
9	8.4	15	10	10	11	10	19	24	21	15	15	14
10	5.6	15	11	11	11	12	20	24	19	14	14	14
11	6.6	13	12	12	11	14	21	24	19	14	14	14
12	7.0	11	13	13	11	16	22	23	18	14	14	14
13	10	12	14	12	11	18	21	23	18	14	14	14
14	16	11	14	11	11	18	21	24	18	14	14	14
15	18	12	16	13	11	18	20	26	17	14	14	14
16	18	12	15	14	9.8	17	19	26	23	15	14	14
17	18	11	14	13	10	17	20	24	27	14	14	14
18	17	12	12	13	10	14	21	23	20	14	16	14
19	16	12	12	12	10	15	19	24	20	14	15	14
20	16	12	13	12	10	16	20	22	19	14	14	14
21	15	11	13	12	10	19	21	23	19	14	14	14
22	16	10	13	13	10	18	22	22	18	14	18	14
23	16	9.0	13	12	10	18	21	22	17	14	15	13
24	16	9.0	12	12	9.8	19	23	22	17	14	14	12
25	16	9.6	11	12	11	20	29	21	17	14	14	12
26	15	9.6	9.0	11	12	19	26	21	17	13	14	12
27	15	9.8	9.0	11	11	18	25	21	17	13	14	12
28	9.3	9.8	10	11	11	19	23	21	17	13	14	12
29	14	9.6	11	11	---	20	23	20	17	13	13	12
30	16	9.6	12	11	---	21	23	20	17	14	13	12
31	17	---	12	12	---	22	---	21	---	13	13	---
TOTAL	416.9	365.0	354.2	371	303.6	494.4	629	706	564	445	456	405
MEAN	13.4	12.2	11.4	12.0	10.8	15.9	21.0	22.8	18.8	14.4	14.7	13.5
MAX	18	17	16	14	12	22	29	26	27	17	25	16
MIN	5.6	9.0	8.0	10	9.8	8.4	17	20	17	13	13	12
AC-FT	827	724	703	736	602	981	1250	1400	1120	883	904	803

CAL YR 1982 TOTAL 4026.9 MEAN 11.0 MAX 27 MIN 5.0 AC-FT 7990
WTR YR 1983 TOTAL 5510.1 MEAN 15.1 MAX 29 MIN 5.6 AC-FT 10930

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES.--May 1964 to current year.

INSTRUMENTATION.--Recorder with thermograph attachment.

REMARKS.--Periodic samples obtained for analysis of suspended-sediment concentration most years. Monthly samples obtained for water-quality analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.0°C July 17, 1969; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV 02...	1400	13	450	8.7	.5	14.3	K2	68	290	22	66
DEC 09...	1410	11	590	--	.0	--	--	--	--	--	--
JAN 27...	1415	11	490	7.9	1.0	12.2	K2	K28	270	2	57
APR 18...	1440	20	420	8.3	6.5	9.9	K1	--	--	--	--
18...	1445	20	420	8.3	6.5	9.9	--	--	240	0	50
JUN 07...	1255	19	458	--	12.5	--	--	--	--	--	--
JUL 19...	1410	15	417	--	18.5	--	--	--	--	--	--
AUG 02...	1145	13	490	8.6	14.5	9.4	--	--	260	33	53
SEP 02...	1230	13	450	--	14.0	--	--	--	--	--	--

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (C0932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
NOV 02...	31	1.8	1	.0	1.5	271	9.0	.90	.20	9.3	262
DEC 09...	--	--	--	--	--	--	--	--	--	--	--
JAN 27...	31	1.8	1	.0	1.3	268	8.0	1.1	.20	9.4	244
APR 18...	--	--	--	--	1.6	--	--	--	--	--	--
18...	27	1.7	2	.0	1.7	239	8.6	1.4	.20	7.8	227
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
JUL 19...	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	32	2.6	2	.0	1.0	231	7.9	1.0	.20	8.3	261
SEP 02...	--	--	--	--	--	--	--	--	--	--	--

E Estimated.
K Non-ideal colony count.

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
NOV										
02...	280	.36	9.5	.100	.010	.03	.03	.010	26	.94
DEC										
09...	--	--	--	--	--	--	--	--	--	--
JAN										
27...	270	.33	7.4	.210	.020	.06	.06	.020	21	.64
APR										
18...	--	--	--	.100	.060	.18	.12	.040	32	1.7
18...	240	.31	12	.100	.060	.18	.12	.040	32	1.7
JUN										
07...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	--	--	--	--	--	--
AUG										
02...	240	.36	9.3	<.100	.090	.28	.18	.060	13	.46
SEP										
02...	--	--	--	--	--	--	--	--	--	--

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90) (80060)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L) (09511)
NOV									
02...	1400	13	--	--	--	--	--	--	--
DEC									
09...	1410	11	--	--	--	--	--	--	--
JAN									
27...	1415	11	--	--	--	--	--	--	--
APR									
18...	1440	20	<5.2	<.9	<3.1	1.6	<3.0	1.5	.10
18...	1445	20	--	--	--	--	--	--	--
JUN									
07...	1255	19	--	--	--	--	--	--	--
JUL									
19...	1410	15	--	--	--	--	--	--	--
AUG									
02...	1145	13	--	--	--	--	--	--	--
SEP									
02...	1230	13	--	--	--	--	--	--	--

< Less than.

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	7.0	4.0	3.5	1.0	.0	.0	.0	.0	.5	.5	1.0	.5
2	8.0	4.0	.5	.0	.0	.0	.0	.0	.5	.5	1.5	.5
3	7.0	4.0	.0	.0	.0	.0	.0	.0	.5	.5	2.0	.5
4	6.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	3.5	.5
5	6.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	1.5	.5
6	6.5	4.0	1.0	.0	.0	.0	.0	.0	.0	.0	.5	.5
7	7.0	3.5	1.5	.5	.0	.0	.0	.0	.0	.0	.5	.0
8	5.5	3.5	1.0	.5	.0	.0	.0	.0	.0	.0	.5	.0
9	3.5	.5	1.5	1.0	.0	.0	.0	.0	.0	.0	.5	.0
10	.5	.5	3.5	1.0	.0	.0	.0	.0	.5	.0	.5	.0
11	1.0	.5	1.0	.0	.0	.0	.0	.0	.5	.5	1.0	.5
12	1.0	1.0	.0	.0	.0	.0	.0	.0	.5	.5	4.0	1.0
13	1.0	.5	.0	.0	.0	.0	.0	.0	1.0	.5	4.5	1.0
14	4.5	.5	.0	.0	.0	.0	.0	.0	1.0	1.0	4.0	1.0
15	5.5	3.5	.0	.0	.0	.0	.0	.0	1.0	1.0	3.5	1.0
16	6.5	4.0	.0	.0	.0	.0	.0	.0	1.0	1.0	2.0	1.0
17	6.0	3.5	.0	.0	.0	.0	.0	.0	1.0	1.0	1.0	.0
18	5.5	3.5	.0	.0	.0	.0	.0	.0	1.0	1.0	.5	.5
19	3.5	.5	.0	.0	.0	.0	.0	.0	1.0	1.0	.5	.5
20	2.0	.0	.0	.0	.0	.0	.0	.0	1.0	.5	.5	.5
21	3.5	.0	.0	.0	.0	.0	.0	.0	1.0	.5	.5	.5
22	4.0	.5	.0	.0	.0	.0	.0	.0	1.0	1.0	1.5	.5
23	5.0	1.0	.0	.0	.0	.0	.0	.0	1.0	1.0	3.5	.5
24	6.0	3.5	.0	.0	.0	.0	.0	.0	1.0	1.0	2.0	.5
25	5.5	3.5	.0	.0	.0	.0	.0	.0	1.0	.5	---	1.0
26	5.5	3.5	.0	.0	.0	.0	.0	.0	1.0	.5	---	1.5
27	5.0	1.0	.0	.0	.0	.0	.0	.0	1.0	.5	---	1.0
28	1.0	.0	.0	.0	.0	.0	1.0	.5	1.5	.5	---	1.0
29	.0	.0	.0	.0	.0	.0	.5	.5	---	---	---	1.0
30	3.0	.0	.0	.0	.0	.0	.5	.5	---	---	---	---
31	4.5	3.0	---	---	.0	.0	.5	.5	---	---	---	---
MONTH	8.0	.0	3.5	.0	.0	.0	1.0	.0	1.5	.0	4.5	.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	4.5	1.0	13.0	6.0	16.5	9.5	18.5	13.0	---	---
2	---	---	5.5	1.0	12.0	7.0	18.0	11.5	17.0	14.0	15.5	13.5
3	---	---	7.0	.5	15.0	8.0	14.5	11.0	14.0	11.0	16.0	10.0
4	---	---	9.5	2.0	11.5	9.0	15.5	10.0	15.5	11.0	13.0	10.0
5	---	---	10.0	2.0	11.0	8.5	18.5	9.5	13.0	11.0	13.0	8.5
6	---	---	8.5	4.0	13.5	4.0	19.5	11.0	16.0	10.0	11.0	6.0
7	---	---	6.5	1.5	14.5	8.5	18.5	13.0	16.5	10.0	13.5	6.5
8	---	---	11.5	3.0	13.0	8.5	21.0	14.0	15.5	10.0	12.0	9.0
9	---	---	13.0	4.5	18.5	9.5	21.5	14.0	17.0	10.5	15.0	9.0
10	---	---	9.0	4.0	15.5	10.5	19.5	14.0	16.5	10.5	11.0	8.0
11	---	---	5.5	.0	19.0	9.5	18.0	10.5	16.5	10.5	11.0	6.0
12	---	---	1.5	.0	14.5	12.0	19.0	10.5	14.0	12.0	8.5	6.5
13	---	---	3.5	.0	13.5	10.0	19.5	12.0	14.5	9.0	10.5	6.0
14	---	---	6.0	.0	15.5	8.5	20.0	11.5	---	---	13.0	8.0
15	---	---	5.0	1.0	15.0	8.5	17.0	13.5	---	---	9.5	6.0
16	---	---	6.0	1.0	12.0	9.5	18.0	11.0	---	---	10.0	4.5
17	---	---	---	---	15.0	9.5	20.0	13.5	---	---	7.0	3.5
18	6.0	4.0	---	---	17.0	9.5	21.0	13.0	---	---	5.5	2.0
19	5.5	1.0	---	---	17.0	10.5	19.5	14.0	---	---	5.0	.5
20	6.5	.5	9.0	6.0	18.5	11.0	20.0	13.5	---	---	.5	.0
21	8.0	.5	10.5	4.0	20.0	11.5	19.0	13.5	---	---	1.0	.0
22	5.0	4.0	10.0	4.5	18.5	11.0	16.0	13.0	---	---	3.0	.0
23	6.0	2.0	13.0	5.0	20.0	12.0	14.0	12.0	---	---	6.0	.5
24	8.0	1.0	12.0	5.5	20.0	13.0	18.0	12.0	---	---	5.5	2.0
25	9.0	3.0	15.0	5.5	17.0	12.0	19.0	11.5	---	---	8.0	2.0
26	8.0	1.5	15.0	7.0	14.5	11.5	19.0	14.5	---	---	9.0	3.0
27	6.5	1.0	14.0	8.0	12.0	10.0	18.5	13.0	---	---	10.5	4.5
28	5.5	1.5	15.5	7.0	13.0	10.0	17.0	13.0	---	---	8.5	5.5
29	4.5	1.0	14.0	6.5	15.5	9.5	19.0	13.0	---	---	9.5	4.5
30	3.5	1.0	9.5	6.0	16.5	10.0	19.5	13.0	---	---	11.5	8.5
31	---	---	9.0	6.0	---	---	18.0	13.0	---	---	---	---
MONTH	9.0	.5	15.5	.0	20.0	4.0	21.5	9.5	18.5	9.0	16.0	.0

06409500 DEERFIELD RESERVOIR NEAR HILL CITY, SD

LOCATION.--Lat 44°01'41", long 103°47'09", in NE¼SW¼ sec.20, T.1 N., R.3 E., at dam on Castle Creek, Hydrologic Unit 10120110, 0.4 mi upstream from Dutchman Creek and 12.5 mi northwest of Hill City.

DRAINAGE AREA.--95 mi^2, approximately.

PERIOD OF RECORD.--May 1947 to current year (monthend contents only). Some elevations obtained during period of initial filling, December 1945 to May 1947, are available in Bureau of Reclamation files. Prior to October 1953, published as "near Deerfield."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to July 20, 1964, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam. Storage began Dec. 3, 1945; dam completed in 1947. Usable capacity, 15,153 acre-ft between elevations 5,839 ft (lowest outlet) and 5,908 ft (crest of spillway). Dead storage below elevation 5,839 ft, 565 acre-ft. Figures given herein represent usable contents. Water is used to supplement Rapid City water supply and for irrigation in Rapid Creek basin downstream from Rapid City.

COOPERATION.--Records of elevation and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 15,340 acre-ft May 22, 1952 (elevation, 5,908.50 ft), from capacity table extended above elevation 5,908.00 ft (crest of spillway); minimum observed, 5 acre-ft Oct. 2, 1959 (elevation, 5,839.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 6,751 acre-ft Sept. 30 (elevation, 5,883.13 ft); minimum, 141 acre-ft Oct. 1 (elevation, 5,841.35 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	5840.97	116	
Oct. 31	5851.54	1011	+895
Nov. 30	5858.20	1801	+790
Dec. 31	5861.92	2328	+527
CAL YR 1982			-11409
Jan. 31	5865.76	2949	+621
Feb. 28	5868.58	3458	+509
Mar. 31	5870.87	3906	+448
Apr. 30	5871.28	3989	+83
May 31	5871.09	3950	-39
June 30	5875.48	4879	+929
July 31	5877.50	5410	+531
Aug. 31	5881.46	6316	+906
Sept. 30	5883.13	6751	+435
WTR YR 1983			+6635

06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD

LOCATION.--Lat 44°01'45", long 103°46'53", in NW¼SE¼ sec.20, T.1 N., R.3 E., Pennington County, Hydrologic Unit 10120110, on left bank 200 ft upstream from Dutchman Creek, 1,100 ft downstream from Deerfield Dam, and 12.5 mi northwest of Hill City.

DRAINAGE AREA.--96 mi², approximately.

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,784.52 ft National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 15, 1947, at site 400 ft downstream at datum 0.23 ft higher. Oct. 15, 1947, to Sept. 1, 1948, at site 550 ft downstream at datum 1.77 ft lower, and Sept. 2, 1948, to Nov. 2, 1971, at site 300 ft upstream at datum 4.0 ft higher.

REMARKS.--Records good. Flow completely regulated by Deerfield Reservoir 1,100 ft upstream. (See station 06409500.) Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--37 years, 11.1 ft³/s (8,040 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 200 ft³/s May 22, 1952; maximum gage height, 4.99 ft Sept. 24, 1982 (backwater from culverts and heavy moss growth); no flow at times in 1948, 1950-60.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 41 ft³/s May 7, 8 (gage height, 3.67 ft); minimum daily discharge, 0.06 ft³/s Oct. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	.13	.16	.52	5.1	3.9	19	40	11	5.4	4.7	4.3
2	4.7	.13	.16	.48	5.0	3.9	19	40	11	5.3	4.8	4.0
3	4.5	.12	.60	.40	5.0	3.9	19	40	9.3	5.4	4.7	3.9
4	4.5	.14	1.3	.40	5.0	3.9	19	40	8.5	5.4	6.6	4.1
5	5.1	.14	1.3	.40	5.0	3.9	19	40	8.3	5.4	5.1	4.1
6	5.1	.14	1.3	.37	5.0	3.9	19	40	8.3	5.4	4.7	4.1
7	4.6	.14	1.3	.44	4.8	4.0	19	41	8.1	5.3	4.5	4.0
8	4.5	.14	1.3	.52	4.8	3.9	17	41	8.2	5.3	4.3	4.0
9	4.1	.12	1.3	.72	4.8	3.9	16	36	8.0	5.1	4.2	4.0
10	3.4	.10	1.3	.80	4.7	4.0	16	32	6.3	5.2	4.2	4.0
11	2.7	.10	1.3	1.0	4.7	4.0	17	32	4.7	5.1	4.1	4.0
12	2.2	.10	1.2	1.4	4.6	3.7	16	32	4.7	5.1	4.1	4.0
13	2.0	.10	1.2	1.4	4.4	3.8	16	34	4.7	5.1	4.1	4.0
14	1.8	.12	1.3	1.4	4.2	3.9	16	36	5.6	5.1	4.1	4.0
15	1.7	.12	1.2	1.4	4.2	5.0	16	36	5.8	5.1	4.1	4.0
16	1.4	.14	1.0	1.6	4.2	8.4	16	35	5.8	5.0	4.0	4.0
17	1.2	.16	.95	1.5	4.2	8.7	16	36	6.0	5.1	4.0	4.0
18	1.0	.16	.95	1.4	4.3	12	16	36	5.7	5.1	4.0	4.2
19	.76	.16	.90	1.3	4.6	13	16	36	5.8	5.1	4.0	4.3
20	.56	.14	.85	1.0	5.2	13	16	36	5.7	4.8	4.0	4.4
21	.37	.14	.76	1.0	6.4	15	16	35	5.8	4.5	3.9	4.1
22	.28	.12	.68	1.2	6.4	18	17	35	5.7	4.5	4.2	4.1
23	.25	.12	.64	1.2	6.3	19	16	34	5.6	4.5	4.0	4.1
24	.22	.12	.64	1.3	6.3	19	17	34	5.7	4.5	4.0	4.1
25	.19	.14	.60	1.3	6.1	19	23	34	5.6	4.6	4.0	4.2
26	.06	.16	.60	1.4	6.1	19	26	29	5.5	4.6	4.0	4.1
27	.25	.16	.56	1.7	6.6	19	26	17	5.4	4.5	4.1	3.9
28	.25	.16	.56	4.0	7.0	19	26	12	5.4	4.5	4.2	3.7
29	.19	.16	.56	5.4	---	19	35	11	5.5	4.7	4.3	3.9
30	.16	.16	.52	5.4	---	19	40	11	5.4	4.7	4.3	3.9
31	.16	---	.52	5.2	---	19	---	11	---	4.8	4.2	---
TOTAL	63.00	4.04	27.51	47.55	145.0	318.7	585	1002	197.1	154.2	133.5	121.5
MEAN	2.03	.13	.89	1.53	5.18	10.3	19.5	32.3	6.57	4.97	4.31	4.05
MAX	5.1	.16	1.3	5.4	7.0	19	40	41	11	5.4	6.6	4.4
MIN	.06	.10	.16	.37	4.2	3.7	16	11	4.7	4.5	3.9	3.7
AC-FT	125	8.0	55	94	288	632	1160	1990	391	306	265	241

CAL YR 1982 TOTAL 11043.85 MEAN 30.3 MAX 86 MIN .06 AC-FT 21910
WTR YR 1983 TOTAL 2799.10 MEAN 7.67 MAX 41 MIN .06 AC-FT 5550

06410500 RAPID CREEK ABOVE PACTOLA RESERVOIR, AT SILVER CITY, SD

LOCATION.--Lat 44°05'05", long 103°34'48", in SW¼SE¼ sec.36, T.2 N., R.4 E., Pennington County, Hydrologic Unit 10120110, on right bank 0.8 mi west of Silver City and 3.0 mi downstream from Slate Creek.

DRAINAGE AREA.--292 mi^2.

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,620.00 ft National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Deerfield Reservoir on Castle Creek since December 1945 (see station 06409500). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--30 years, 40.8 ft^3/s (29,560 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,060 ft^3/s May 15, 1965 (gage height, 10.44 ft), from rating curve extended above 1,000 ft^3/s on basis of slope-area measurement of peak flow; minimum daily, 4.0 ft^3/s Jan. 20, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 262 ft^3/s at 1100 hours, May 9 (gage height, 6.00 ft); minimum daily, 8.0 ft^3/s Dec. 7.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Nov. 4, 5, 13-15, Nov. 21 to Jan. 27, Jan. 29, Jan. 31 to Feb. 12, Feb. 21, 22, 25, Mar. 21-23)

4.2	4.3	4.8	51
4.3	8.9	5.3	122
4.5	22	5.9	239

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	43	28	22	22	25	51	153	102	62	35	27
2	24	41	25	21	21	28	49	146	98	57	35	26
3	21	40	27	19	20	33	51	144	94	56	34	26
4	20	36	30	22	21	32	47	146	88	56	39	26
5	19	42	25	24	20	36	44	144	86	55	91	26
6	18	44	20	25	19	30	44	149	84	50	59	26
7	18	42	8.0	24	23	30	48	215	79	48	45	25
8	22	41	9.8	23	27	30	57	211	82	48	39	25
9	27	39	12	19	26	32	50	222	113	44	37	25
10	24	39	11	18	28	33	51	213	97	42	34	25
11	23	38	13	26	29	36	58	200	95	42	33	25
12	27	38	18	32	32	40	59	198	86	42	32	25
13	32	31	22	29	34	41	49	192	86	42	32	25
14	34	32	23	21	35	42	53	188	85	40	31	25
15	45	31	19	23	43	41	57	182	79	38	31	25
16	48	36	21	15	42	38	55	182	81	39	32	25
17	55	39	22	19	24	37	59	176	109	37	34	25
18	55	39	24	18	21	38	66	171	111	36	35	25
19	52	37	26	17	23	39	93	165	109	37	33	25
20	46	36	27	17	22	38	105	164	109	39	33	24
21	45	29	26	18	23	35	115	160	101	39	32	24
22	44	22	25	17	26	40	125	155	92	38	45	24
23	42	19	22	19	23	45	124	153	86	38	39	24
24	42	22	21	20	23	51	131	150	75	38	32	24
25	42	23	19	18	24	46	149	144	71	38	31	24
26	43	25	17	20	25	46	155	139	69	38	30	25
27	44	27	16	21	25	44	153	128	68	37	30	25
28	45	30	16	27	25	46	148	112	66	37	29	25
29	45	32	16	26	---	48	142	104	63	37	27	25
30	42	33	19	24	---	48	148	102	62	38	27	25
31	42	---	21	23	---	56	---	102	---	36	27	---
TOTAL	1112	1026	628.8	667	726	1204	2536	5010	2626	1324	1123	751
MEAN	35.9	34.2	20.3	21.5	25.9	38.8	84.5	162	87.5	42.7	36.2	25.0
MAX	55	44	30	32	43	56	155	222	113	62	91	27
MIN	18	19	8.0	15	19	25	44	102	62	36	27	24
AC-FT	2210	2040	1250	1320	1440	2390	5030	9940	5210	2630	2230	1490

CAL YR 1982 TOTAL 20516.7 MEAN 56.2 MAX 255 MIN 7.5 AC-FT 40690
WTR YR 1983 TOTAL 18733.8 MEAN 51.3 MAX 222 MIN 8.0 AC-FT 37160

06411000 PACTOLA RESERVOIR NEAR SILVER CITY, SD

LOCATION.--Lat 44°04'20", long 103°29'17", in NE¼SW¼ sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, in outlet works of dam on Rapid Creek, 3.8 mi east of Silver City.

DRAINAGE AREA.--319 mi².

PERIOD OF RECORD.--August 1956 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Feb. 18, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by an earthfill dam completed August 1956. Storage began August 22, 1956. Conservation capacity, 54,960 acre-ft between elevations 4,456.1 ft and 4,580.2 ft. Combined dead and inactive storage below elevation 4,456.1 ft is 1,003 acre-ft. Flood storage capacity, 43,050 acre-ft between elevations 4,580.2 ft and 4,621.5 ft (crest of spillway). Surcharge capacity, 15,780 acre-ft between elevations 4,621.5 ft and 4,633.7 ft (maximum pool elevation). Figures given herein represent contents above elevation 4,456.1 ft. Reservoir provides flood control and water for municipal and irrigation uses.

COOPERATION.--Records of elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 60,970 acre-ft May 19, 1964 (elevation, 4,585.87 ft); minimum observed since initial filling, 40,566 acre-ft Oct. 2, 1981 (elevation, 4,561.50 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 55,679 acre-ft June 18, 19 (elevation, 4,581.03 ft); minimum, 51,937 acre-ft Sept. 21-23 (elevation, 4,576.61 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	4550.39	55126	
Oct. 31	4580.13	54901	-225
Nov. 30	4580.25	55005	+104
Dec. 31	4579.78	54601	-404
CAL YR 1982			+13590
Jan. 31	4579.80	54618	+17
Feb. 28	4579.63	54473	-145
Mar. 31	4579.57	54422	-51
Apr. 30	4579.91	54712	+290
May 31	4579.59	54439	-273
June 30	4580.41	55143	+704
July 31	4577.90	53007	-2136
Aug. 31	4577.22	52441	-566
Sept. 30	4576.68	51995	-446
WTR YR 1983			-3131

06411500 RAPID CREEK BELOW PACTOLA DAM, SD

LOCATION.--Lat 44°04'36", long 103°28'54", in SW¼NE¼ sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, on right bank 2,000 ft downstream from Pactola Dam, 3.9 mi upstream from Deer Creek and 13 mi west of Rapid City.

DRAINAGE AREA.--320 mi², approximately.

PERIOD OF RECORD.--October 1928 to September 1932 (combined records of Creek and Dakota Power and Light Co. flume), July 1946 to current year. Prior to October 1953, published as "near Pactola." Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1931(M).

GAGE.--Water-stage recorder; concrete control since Oct. 16, 1962. Datum of gage is 4,406.00 ft National Geodetic Vertical Datum of 1929, Bureau of Reclamation bench mark. Apr. 19, 1929, to June 30, 1932, nonrecording gage at site 3,500 ft upstream at different datum. July 24, 1946, to Aug. 24, 1947, nonrecording gage and Aug. 25, 1947, to Nov. 18, 1953, water-stage recorder, at site 2 mi upstream at different datum.

REMARKS.--Records good. Flow regulated by dam on Castle Creek since Dec. 3, 1945 (see station 06409500), and completely regulated by Pactola Reservoir 2,000 ft upstream since Aug. 22, 1956 (see station 06411000).

AVERAGE DISCHARGE.--41 years, 44.2 ft³/s (32,020 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,170 ft³/s May 22, 1952 (gage height, 6.74 ft), site and datum then in use; no flow Oct. 11-17, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 268 ft³/s May 11-13 (gage height, 8.41 ft); minimum daily, 17 ft³/s Nov. 26-28.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

7.2	17	7.8	78
7.4	29	8.1	147
7.6	49	8.5	301

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	37	39	22	24	26	62	182	61	63	36	41
2	28	37	39	22	24	26	46	178	50	48	36	44
3	28	37	39	22	24	26	46	175	50	48	42	47
4	28	37	38	22	24	26	46	175	50	48	49	47
5	28	32	38	22	24	26	46	153	50	47	49	46
6	28	19	38	22	24	26	46	138	49	48	50	46
7	28	19	38	21	23	31	46	138	49	65	50	46
8	28	19	38	21	24	37	46	172	50	81	46	46
9	28	19	38	21	24	37	47	206	55	81	43	34
10	27	33	38	22	24	37	49	234	68	79	43	28
11	27	49	38	22	24	37	49	268	67	71	44	28
12	27	49	37	22	25	36	58	268	67	64	53	28
13	27	34	37	21	25	36	65	268	79	79	61	28
14	27	22	25	21	25	36	65	263	87	99	61	25
15	26	21	18	21	25	36	65	263	87	99	61	19
16	26	21	18	21	25	37	65	210	85	101	61	19
17	26	21	18	21	25	42	67	178	85	103	65	19
18	54	32	18	21	25	47	67	153	103	103	68	18
19	76	46	18	21	25	47	67	175	115	91	68	18
20	78	46	18	21	25	47	68	165	130	78	68	18
21	78	46	18	22	25	47	71	162	138	74	68	18
22	79	46	18	22	25	47	78	168	117	83	51	18
23	78	46	24	21	26	47	110	172	106	91	40	18
24	78	30	28	21	26	47	130	168	99	91	28	19
25	78	18	28	21	26	57	128	168	101	88	24	19
26	76	17	26	22	26	73	141	168	85	85	24	18
27	76	17	22	22	26	73	165	153	78	85	24	18
28	76	17	22	22	26	73	175	103	78	85	24	18
29	57	27	22	22	---	73	178	91	78	74	32	18
30	34	39	22	22	---	73	182	79	78	44	38	18
31	37	---	22	22	---	73	---	71	---	36	40	---
TOTAL	1420	933	880	668	694	1382	2474	5465	2395	2332	1447	827
MEAN	45.8	31.1	28.4	21.5	24.8	44.6	82.5	176	79.8	75.2	46.7	27.6
MAX	79	49	39	22	26	73	182	268	138	103	68	47
MIN	26	17	18	21	23	26	46	71	49	36	24	18
AC-FT	2820	1850	1750	1320	1380	2740	4910	10840	4750	4630	2870	1640

CAL YR 1982 TOTAL 15950 MEAN 43.7 MAX 139 MIN 11 AC-FT 31640
WTR YR 1983 TOTAL 20917 MEAN 57.3 MAX 268 MIN 17 AC-FT 41490

06412500 RAPID CREEK ABOVE CANYON LAKE, NEAR RAPID CITY, SD

LOCATION.--Lat 44°03'04", long 103°18'47", in NE¼NE¼ sec.18, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on right bank at bridge on State Highway 44, 1.0 mi southwest of city limits of Rapid City and 2.8 mi downstream from Victoria Creek.

DRAINAGE AREA.--371 mi^2.

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,405.39 ft National Geodetic Vertical Datum of 1929, levels by Corps of Engineers. Prior to Oct. 6, 1947, nonrecording gage, Oct. 6, 1947, to Nov. 2, 1967, and Oct. 1, 1968, to Sept. 30, 1976, water-stage recorder all at datum 2.0 ft higher. Nov. 3, 1967, to Sept. 30, 1968, nonrecording gage at site 0.2 mi downstream at datum 1.12 ft lower.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by dam on Castle Creek since December 1945 (see station 06409500) and by Pactola Reservoir 21 mi upstream since August 1956 (see station 06411000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--37 years, 39.4 ft^3/s (28,550 acre-ft/yr); median of yearly mean discharges, 35 ft^3/s (25,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,200 ft^3/s June 9, 1972 (gage height, 17.77 ft), present datum, from floodmarks, from rating curve extended above 1,300 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in 1950-51, 1957-60, 1962-63, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 283 ft^3/s at 0700 hours, May 11 (gage height, 4.66 ft); minimum daily, 9.8 ft^3/s Dec. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	34	17	17	19	20	72	176	85	91	37	32
2	26	34	17	18	19	20	46	176	68	63	37	33
3	25	34	17	18	19	20	44	176	66	59	35	37
4	24	34	17	19	19	20	44	176	65	56	43	38
5	24	34	14	19	20	20	44	163	63	53	44	41
6	23	25	12	19	20	20	44	143	63	51	45	41
7	23	18	9.8	19	21	20	44	159	63	52	45	41
8	24	17	11	19	21	26	44	172	64	78	45	41
9	31	17	12	18	22	28	44	216	65	81	39	41
10	39	18	11	18	25	27	44	231	78	81	39	29
11	32	17	12	18	30	27	44	276	81	75	39	26
12	30	16	13	22	27	27	47	274	83	62	40	26
13	28	17	14	22	22	27	65	274	88	63	54	26
14	28	18	14	19	23	27	65	274	102	88	54	24
15	27	18	15	19	21	27	65	272	102	91	54	21
16	27	18	15	19	25	28	65	244	103	94	55	17
17	26	18	15	19	21	28	66	190	109	95	56	16
18	30	18	15	19	21	35	66	168	111	95	61	15
19	66	18	17	20	20	38	68	178	130	91	63	15
20	69	18	15	20	20	40	68	174	140	78	63	16
21	69	17	18	21	20	40	69	178	155	71	63	16
22	69	16	18	23	20	40	69	178	149	74	69	16
23	69	13	17	23	20	40	92	178	131	85	41	16
24	69	12	17	23	19	40	119	170	119	88	38	16
25	69	12	17	22	19	40	123	170	119	87	25	17
26	69	11	17	26	19	64	129	170	112	86	22	17
27	69	16	17	28	20	66	150	172	96	84	21	17
28	69	16	15	23	20	67	168	131	93	82	20	16
29	68	16	15	20	---	68	176	107	95	87	19	16
30	36	17	16	22	---	69	176	104	95	68	29	16
31	34	---	17	19	---	71	---	88	---	40	30	---
TOTAL	1320	587	466.8	631	592	1130	2360	5758	2893	2349	1325	739
MEAN	42.6	19.6	15.1	20.4	21.1	36.5	78.7	186	96.4	75.8	42.7	24.6
MAX	69	34	18	28	30	71	176	276	155	95	69	41
MIN	23	11	9.8	17	19	20	44	88	63	40	19	15
AC-FT	2620	1160	926	1250	1170	2240	4680	11420	5740	4660	2630	1470

CAL YR 1982 TOTAL 14513.9 MEAN 39.8 MAX 155 MIN 2.0 AC-FT 28790
WTR YR 1983 TOTAL 20150.8 MEAN 55.2 MAX 276 MIN 9.8 AC-FT 39970

06414000 RAPID CREEK AT RAPID CITY, SD

LOCATION.--Lat 44°05'09", long 103°14'31", in NE¼SE¼SW¼ sec.35, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank 3,000 ft upstream from 12th Street in Rapid City and 3.6 mi downstream from Canyon Lake Dam.

DRAINAGE AREA.--410 mi², approximately.

PERIOD OF RECORD.--June 1903 to November 1906, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,230.00 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 30, 1906, nonrecording gage at site 1 mi downstream at different datum, and June 10, 1972, to Nov. 1, 1972, nonrecording gage at site 800 ft downstream at datum 0.80 ft higher. July 1942 to June 9, 1972, water-stage recorder at site 300 ft downstream at datum 0.80 ft higher (destroyed by flood).

REMARKS.--Records good except those for November and December, which are fair. Several small diversions above station to municipal park pools and for irrigation of about 320 acres. Flow regulated by Pactola Reservoir 25.4 mi upstream since Aug. 22, 1956 (see station 06411000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--44 years, 61.2 ft³/s (44,340 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s June 9, 1972 (gage height, 19.66 ft), from floodmarks, on basis of slope-area measurement of peak flow; minimum, 1.6 ft³/s Apr. 20, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 13, 1920, reached a stage of 14.4 ft present datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 411 ft³/s at 0200 hours, Aug. 22 (gage height, 5.56 ft); minimum daily discharge, 26 ft³/s Sept. 26-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	51	50	42	34	36	87	195	109	109	46	44
2	52	51	53	38	39	35	68	188	90	77	50	43
3	50	50	52	37	32	35	62	186	91	72	51	48
4	48	50	51	41	33	35	65	188	87	70	53	54
5	46	50	45	38	35	36	64	181	84	64	59	59
6	46	42	40	39	36	36	63	186	82	51	55	55
7	46	34	30	39	36	34	63	205	75	45	52	53
8	50	33	32	39	41	38	63	190	70	69	43	47
9	107	30	33	41	41	41	64	217	74	77	39	47
10	87	30	35	35	41	42	63	224	83	76	37	45
11	62	30	33	44	37	43	64	250	88	74	37	39
12	57	30	34	39	38	43	67	261	90	58	48	38
13	54	30	35	39	39	42	86	255	95	54	67	38
14	52	31	36	36	38	42	88	256	109	79	63	37
15	49	32	37	35	36	42	89	253	105	92	59	34
16	48	33	38	37	35	42	90	241	106	100	62	31
17	48	35	42	35	35	42	89	211	124	111	64	29
18	46	34	39	39	35	48	89	191	125	95	74	27
19	82	35	34	41	35	53	90	199	144	86	74	28
20	87	35	35	38	34	54	92	205	149	70	78	32
21	86	34	37	38	34	55	90	203	159	63	76	31
22	87	33	38	38	34	54	90	199	146	68	128	32
23	89	30	36	37	34	54	106	199	125	93	60	31
24	89	31	40	39	34	53	137	198	109	100	54	30
25	87	32	35	37	34	60	140	197	108	87	45	28
26	88	32	34	32	34	78	148	197	120	105	38	26
27	89	34	38	37	38	86	165	194	102	99	37	26
28	87	35	35	38	37	86	177	153	96	93	36	26
29	87	33	34	36	---	88	186	129	103	112	33	28
30	59	43	39	35	---	90	191	120	118	95	36	30
31	51	---	41	34	---	88	---	112	---	62	40	---
TOTAL	2078	1083	1191	1173	1009	1611	2936	6183	3166	2506	1694	1116
MEAN	67.0	36.1	38.4	37.8	36.0	52.0	97.9	199	106	80.8	54.6	37.2
MAX	107	51	53	44	41	90	191	261	159	112	128	59
MIN	46	30	30	32	32	34	62	112	70	45	33	26
AC-FT	4120	2150	2360	2330	2000	3200	5820	12260	6280	4970	3360	2210

CAL YR 1982 TOTAL 21910 MEAN 60.0 MAX 370 MIN 16 AC-FT 43460
WTR YR 1983 TOTAL 25746 MEAN 70.5 MAX 261 MIN 26 AC-FT 51070

06418900 RAPID CREEK BELOW SEWAGE PLANT, NEAR RAPID CITY, SD

LOCATION.--Lat 44°01'24", long 103°05'43", in NW¼NE¼NE¼ sec.25, T.1 N., R.8 E., Pennington County, Hydrologic Unit 10120110, on right bank 80 ft downstream from sewage treatment plant effluent and 6.7 mi southeast of Rapid City.

DRAINAGE AREA.--452 mi^2, approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,000 ft, from topographic map.

REMARKS.--Records good. Flow regulated by Pactola Reservoir 40.9 mi upstream since Aug. 22, 1956 (see station 06411000). Diversions for irrigation of about 7,000 acres above station. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,680 ft^3/s July 25, 1982 (gage height, 9.12 ft); minimum daily, 13 ft^3/s Oct. 4, 7-9, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,260 ft^3/s at 0745 hours, Aug. 22 (gage height, 7.92 ft); minimum daily, 17 ft^3/s Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104	73	69	54	49	56	115	270	96	130	33	19
2	63	71	74	52	47	54	101	280	76	82	23	19
3	58	72	71	51	49	55	84	240	77	65	33	18
4	57	71	71	53	45	56	92	220	76	64	26	17
5	53	71	71	54	47	59	92	200	68	60	31	21
6	54	69	72	56	48	61	85	280	60	51	30	20
7	54	58	65	56	48	56	84	310	56	47	26	29
8	73	55	64	54	53	56	83	260	46	36	25	30
9	298	53	64	55	55	61	83	250	52	45	23	27
10	257	53	69	51	56	63	84	260	53	44	23	29
11	99	61	64	54	53	64	85	270	63	42	23	23
12	85	79	65	53	55	64	90	386	57	34	24	21
13	79	80	74	54	57	63	108	323	61	30	37	20
14	75	70	78	51	57	64	114	311	75	36	35	23
15	70	54	66	53	55	64	114	308	76	48	31	24
16	69	56	54	54	51	64	115	303	72	63	26	24
17	68	59	61	54	54	66	113	241	115	65	29	23
18	67	57	60	52	53	70	112	231	102	66	34	21
19	90	64	54	54	54	78	110	206	123	53	64	26
20	111	83	54	52	52	78	111	222	136	41	42	30
21	113	76	52	50	53	80	109	219	158	35	43	32
22	112	76	54	50	53	78	108	216	162	32	240	32
23	114	69	53	52	54	77	115	214	139	43	71	33
24	114	72	52	52	53	75	153	210	114	50	50	31
25	114	71	53	48	53	56	163	207	107	54	43	30
26	113	55	49	45	55	107	180	200	115	79	34	30
27	117	53	51	48	62	119	190	188	91	84	33	28
28	113	54	49	54	59	115	180	166	75	53	28	29
29	114	53	46	51	---	114	210	123	82	79	22	31
30	4.0	56	51	50	---	116	230	116	102	119	19	34
31	75	---	53	50	---	116	---	103	---	59	19	---
TOTAL	2987.0	1944	1883	1617	1480	2335	3613	7333	2685	1789	1220	774
MEAN	96.4	64.8	60.7	52.2	52.9	75.3	120	237	89.5	57.7	39.4	25.8
MAX	298	83	78	56	62	119	230	386	162	130	240	34
MIN	4.0	53	46	45	45	54	83	103	46	30	19	17
AC-FT	5920	3860	3730	3210	2940	4630	7170	14550	5330	3550	2420	1540

CAL YR 1982 TOTAL 28033.0 MEAN 76.8 MAX 636 MIN 4.0 AC-FT 55600
WTR YR 1983 TOTAL 29660.0 MEAN 81.3 MAX 386 MIN 4.0 AC-FT 58830

06421500 RAPID CREEK NEAR FARMINGDALE, SD

LOCATION.--Lat 43°56'31", long 102°51'12", in SW¼SW¼SW¼ sec.19, T.1 S., R.11 E., Pennington County, Hydrologic Unit 10120110, on right bank at downstream side of bridge, 2 mi southeast of Farmingdale and 4.8 mi downstream from Antelope Creek.

DRAINAGE AREA.--602 mi^2.

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,700 ft, from topographic map. Prior to Sept. 19, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Pactola Reservoir 67 mi upstream since August 22, 1956 (see station 06411000). Diversions for irrigation of about 10,000 acres above station.

AVERAGE DISCHARGE.--37 years, 55.5 ft^3/s (40,210 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,320 ft^3/s June 10, 1972 (gage height, 11.85 ft), from floodmarks, from rating curve extended above 400 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times in 1949, 1952-56, 1958-63, 1969-71.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,030 ft^3/s at 0715 hours, Oct. 10 (gage height, 9.17 ft); minimum daily, 1.4 ft^3/s July 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	86	84	70	59	63	113	274	94	153	56	16
2	102	82	88	68	55	59	114	287	77	105	40	19
3	68	79	79	64	43	56	92	231	49	75	24	18
4	60	79	86	64	50	57	82	222	56	65	31	19
5	58	79	77	65	54	61	96	216	50	62	31	18
6	54	80	76	64	64	69	90	199	32	57	29	25
7	57	75	75	62	65	63	84	335	22	47	24	29
8	66	63	61	62	63	59	82	274	18	43	23	37
9	326	61	73	59	67	62	80	241	14	35	29	44
10	760	58	76	50	67	67	77	260	14	41	26	43
11	281	59	74	56	67	69	78	270	14	39	21	45
12	148	73	76	58	65	68	84	337	22	33	17	39
13	115	90	84	56	66	65	86	400	27	26	18	37
14	101	88	86	54	69	65	125	328	34	15	29	35
15	91	75	80	52	66	67	130	310	48	8.2	31	34
16	82	69	74	54	68	63	129	303	55	26	19	33
17	84	65	64	58	63	64	142	276	89	47	14	29
18	78	66	72	56	64	67	137	241	108	47	22	23
19	76	62	68	58	62	75	131	216	103	40	32	19
20	111	81	60	56	59	81	119	225	127	24	51	24
21	124	88	61	54	58	78	113	229	141	16	41	32
22	125	84	57	54	59	78	113	225	155	4.0	141	37
23	125	81	61	57	58	77	111	221	147	1.4	192	39
24	126	68	55	54	58	76	127	219	125	14	76	38
25	125	86	40	52	57	73	158	212	107	33	58	37
26	126	80	53	52	57	91	162	206	110	39	46	37
27	126	72	57	53	58	114	167	196	123	81	31	37
28	127	70	56	67	69	121	189	191	95	68	24	35
29	124	72	54	67	---	116	206	155	85	44	20	35
30	125	76	62	63	---	114	229	117	99	127	21	39
31	96	---	66	58	---	113	---	111	---	94	18	---
TOTAL	4169	2247	2135	1817	1710	2351	3646	7527	2240	1509.6	1235	952
MEAN	134	74.9	68.9	58.6	61.1	75.8	122	243	74.7	48.7	39.8	31.7
MAX	760	90	88	70	69	121	229	400	155	153	192	45
MIN	54	58	40	50	43	56	77	111	14	1.4	14	16
AC-FT	8270	4460	4230	3600	3390	4660	7230	14930	4440	2990	2450	1890

CAL YR 1982 TOTAL 31140.9 MEAN 85.3 MAX 760 MIN 9.9 AC-FT 61770
WTR YR 1983 TOTAL 31538.6 MEAN 86.4 MAX 760 MIN 1.4 AC-FT 62560

06422500 BOXELDER CREEK NEAR NEMO, SD

LOCATION.--Lat 44°08'38", long 103°27'16", in SE¼SE¼ sec.12, T.2 N., R.5 E., Lawrence County, Hydrologic Unit 10120111, on right bank at ranch 0.2 mi upstream from county line, 0.9 mi downstream from Jim Creek and 4.5 mi southeast of Nemo.

DRAINAGE AREA.--96 mi^2, approximately.

PERIOD OF RECORD.--July 1945 to July 1947, May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,320.27 ft National Geodetic Vertical Datum of 1929. July 1945 to July 1947 nonrecording gage at site 100 ft upstream at different datum. May 17, 1966, to June 9, 1972, water-stage recorder (destroyed by flood) and June 10, 1972, to Aug. 8, 1972, nonrecording gage, both at site 100 ft upstream at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--18 years (water years 1946, 1967-83), 18.8 ft^3/s (13,620 acre-ft/yr); median of yearly mean discharges, 18 ft^3/s (13,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,100 ft^3/s June 9, 1972 (gage height, 20.4 ft, site and datum then in use, 22.0 ft, present site and datum), from floodmarks, from rating curve extended above 600 ft^3/s on basis of slope-area measurement of peak flow; minimum daily, 0.70 ft^3/s Dec. 30, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1911 reached a stage of about 16 ft, present datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 20	0830	--	a*3.98	May 7	0700	*178	3.33
Apr. 25	0700	103	2.82				

a Backwater from ice.
Minimum daily discharge, 4.5 ft^3/s Dec. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	24	18	9.5	8.4	11	21	75	47	32	13	7.4
2	10	23	17	9.0	8.4	10	18	68	47	28	12	6.6
3	9.0	22	18	10	8.0	9.4	22	67	43	27	11	6.4
4	10	21	20	11	8.6	8.7	19	63	42	26	11	7.1
5	10	25	13	12	8.6	8.3	21	60	42	26	13	8.0
6	10	26	6.8	11	7.8	9.0	20	61	39	24	13	7.0
7	10	27	4.5	9.8	8.0	10	20	134	38	24	11	6.6
8	12	26	5.6	8.8	8.5	12	20	112	37	23	9.7	6.1
9	15	24	6.5	7.8	9.0	16	21	110	54	22	9.2	6.3
10	20	22	6.0	7.4	9.3	18	24	103	42	21	8.8	7.0
11	15	21	5.6	9.6	9.5	21	33	103	40	19	8.3	6.2
12	12	19	8.0	12	9.5	26	32	106	39	19	9.8	6.2
13	15	21	13	10	9.0	24	21	99	40	18	9.0	6.4
14	19	24	12	8.8	8.4	23	29	105	38	17	8.1	6.4
15	36	28	10	7.4	8.8	22	29	93	35	16	7.7	6.4
16	49	25	11	7.8	9.2	21	29	86	35	16	7.9	6.4
17	64	21	10	6.2	9.4	19	35	81	45	17	8.2	6.5
18	63	21	10	6.8	9.5	17	58	78	42	16	11	6.0
19	53	23	11	6.6	9.7	16	86	81	35	14	10	6.0
20	45	22	12	6.4	9.8	15	84	76	33	15	9.3	6.4
21	43	17	13	6.6	9.8	18	90	70	30	15	12	6.6
22	39	23	13	7.0	10	20	94	66	28	13	14	6.6
23	35	22	12	7.4	10	21	92	62	27	14	13	6.8
24	32	21	11	7.6	11	23	94	59	25	16	10	6.8
25	30	21	10	6.8	11	21	99	56	25	15	9.2	6.8
26	29	20	9.0	7.4	12	19	92	57	26	13	8.4	6.4
27	30	19	8.0	8.4	12	21	82	53	26	13	8.4	6.2
28	28	21	7.0	9.0	12	20	79	50	26	15	7.8	6.4
29	28	20	7.5	8.6	---	21	75	47	28	15	7.4	6.2
30	27	19	8.5	8.4	---	19	74	45	29	24	7.4	6.4
31	25	---	9.5	8.4	---	25	---	47	---	15	7.6	---
TOTAL	831.7	668	326.5	263.5	265.2	544.4	1513	2373	1083	588	306.2	196.6
MEAN	26.8	22.3	10.5	8.50	9.47	17.6	50.4	76.5	36.1	19.0	9.88	6.55
MAX	64	28	20	12	12	26	99	134	54	32	14	8.0
MIN	8.7	17	4.5	6.2	7.8	8.3	18	45	25	13	7.4	6.0
AC-FT	1650	1320	648	523	526	1080	3000	4710	2150	1170	607	390

CAL YR 1982 TOTAL 5531.8 MEAN 15.2 MAX 165 MIN 1.0 AC-FT 10970
WTR YR 1983 TOTAL 8959.1 MEAN 24.5 MAX 134 MIN 4.5 AC-FT 17770

06423010 BOXELDER CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°07'54", long 103"17'54", in NW¼SE¼ sec.17, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120111, near center span on downstream side of bridge on State Highway 79, and 4.0 mi northwest of Rapid City.

DRAINAGE AREA.--128 mi^2.

PERIOD OF RECORD.--May 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,450 ft, from topographic map.

REMARKS.--Records good. Considerable loss in sinkholes in reach above gage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 253 ft^3/s May 18, 1978 (gage height, 31.14 ft), from floodmark; maximum gage height, 31.51 ft May 7, 1983 (backwater from small dam); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 141 ft^3/s May 7 (gage height, 1.51 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	23	10	3.8	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	18	7.6	3.4	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	13	7.4	3.1	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	14	4.2	2.6	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	23	2.9	2.5	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	26	3.8	2.4	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	87	3.3	2.1	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	70	2.9	1.8	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	68	2.7	1.6	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	59	10	1.4	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	56	5.7	1.2	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	63	3.8	1.0	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	56	2.9	.90	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	59	2.8	.78	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	49	2.8	.68	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	41	3.0	.60	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	37	3.6	.60	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	35	3.6	.70	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	33	5.3	.66	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	38	4.4	.64	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	33	3.5	.54	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	28	2.7	.43	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	26	2.7	.38	.00	.00
24	.00	.00	.00	.00	.00	.00	12	25	2.7	.35	.00	.00
25	.00	.00	.00	.00	.00	.00	24	20	2.6	.29	.00	.00
26	.00	.00	.00	.00	.00	.00	25	18	2.9	.24	.00	.00
27	.00	.00	.00	.00	.00	.00	22	13	2.7	.19	.00	.00
28	.00	.00	.00	.00	.00	.00	19	15	3.0	.12	.00	.00
29	.00	.00	.00	.00	---	.00	18	11	3.5	.09	.00	.00
30	.00	.00	.00	.00	---	.00	20	9.0	4.1	.02	.00	.00
31	.00	---	.00	.00	---	.00	---	8.6	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	140.00	1074.6	123.1	35.11	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	4.67	34.7	4.10	1.13	.000	.000
MAX	.00	.00	.00	.00	.00	.00	25	87	10	3.8	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	8.6	2.6	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	278	2130	244	70	.00	.00

CAL YR 1982 TOTAL 35.15 MEAN .096 MAX 15 MIN .00 AC-FT 70
WTR YR 1983 TOTAL 1372.81 MEAN 3.76 MAX 87 MIN .00 AC-FT 2720

06423500 CHEYENNE RIVER NEAR WASTA, SD

LOCATION.--Lat 44°04'52", long 102°24'03", in NE¼NE¼NW¼ sec.2, T.1 N., R.14 E., Pennington County, Hydrologic Unit 10120111, on left bank at downstream side of highway bridge, 200 ft downstream from Chicago and North Western Transportation Co. bridge, 3.0 mi east of Wasta, and 8.6 mi downstream from Boxelder Creek.

DRAINAGE AREA.--12,800 mi^2, approximately.

PERIOD OF RECORD.--July 1914 to June 1915, August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309. Records for Feb. 19-28, 1930, published in WSP 701, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1279: 1930(M), 1931, 1937. See also Period of Record.

GAGE.--Water-stage recorder. Datum of gage is 2,260.78 ft National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1940, nonrecording gage at site 50 ft upstream; Aug. 1, 1940, to Dec. 3, 1940, nonrecording gage and Dec. 4, 1940, to Sept. 30, 1968, water-stage recorder at present site all at datum 2.00 ft higher. Oct. 1, 1968, to Sept. 30, 1972, at datum 1.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Angostura Reservoir 108 mi upstream (see station 06401000) since October 1949 and by upstream reservoirs on Rapid Creek since August 1956. Several observations of water quality were made during the year.

AVERAGE DISCHARGE.--52 years (water years 1929-31, 1935-83), 346 ft^3/s (250,700 acre-ft/yr); median of yearly mean discharges, 290 ft^3/s (210,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 46,300 ft^3/s May 6, 1932 (gage height, 13.28 ft), present datum, from rating curve extended above 11,000 ft^3/s on basis of an incomplete discharge measurement at gage height 10.65 ft, present datum; maximum gage height observed, 14.5 ft, present datum, June 13, 1915; minimum discharge, 0.6 ft^3/s July 27, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1920 reached a stage of 18 ft, present datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,100 ft^3/s at 0800 hours, Oct. 10 (gage height, 8.88 ft); minimum daily, 47 ft^3/s Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	194	140	150	220	208	269	1740	271	299	153	50
2	532	190	150	130	200	205	253	2770	247	282	114	47
3	259	190	170	140	180	204	250	799	227	223	95	52
4	186	190	180	150	195	203	239	498	206	195	78	54
5	165	183	190	160	200	226	235	429	300	196	91	61
6	160	174	130	160	170	285	257	397	231	156	91	65
7	151	171	90	160	200	371	309	4350	191	143	93	68
8	157	164	95	150	220	282	304	1150	160	130	85	[illegible]
9	1320	156	100	150	230	250	296	492	149	114	73	77
10	8470	151	110	120	250	249	294	418	138	96	67	85
11	2290	110	95	130	270	248	269	1240	133	83	70	86
12	511	86	110	190	300	242	239	2000	131	82	64	89
13	356	84	130	180	280	239	266	3200	129	73	60	92
14	305	84	130	160	260	234	250	2300	130	69	54	98
15	263	90	120	160	250	230	345	1700	133	58	52	100
16	242	95	140	160	230	236	473	1200	138	49	56	92
17	221	100	190	140	220	232	455	860	611	73	64	101
18	219	110	185	160	210	224	412	640	1280	289	116	93
19	206	100	180	160	200	215	368	497	1030	158	71	89
20	198	95	170	160	186	208	319	479	900	115	58	87
21	223	90	170	160	165	221	293	511	744	80	86	88
22	230	85	180	160	171	251	275	632	477	70	286	102
23	228	80	150	170	171	291	268	537	358	164	489	108
24	227	85	130	150	168	288	263	526	315	263	232	110
25	222	90	120	140	167	252	277	501	315	141	256	113
26	222	95	120	180	171	304	299	439	277	111	108	108
27	229	110	120	230	187	322	314	423	336	104	92	105
28	231	130	120	220	196	455	309	408	288	120	79	101
29	224	140	120	210	---	342	296	394	305	119	77	101
30	221	140	130	210	---	321	336	358	281	333	65	101
31	219	---	150	215	---	291	---	297	---	245	56	---
TOTAL	19817	3762	4315	5115	5867	8129	9032	32185	10431	4633	3431	2596
MEAN	639	125	139	165	210	262	301	1038	348	149	111	86.5
MAX	8470	194	190	230	300	455	473	4350	1280	333	489	113
MIN	151	80	90	120	165	203	235	297	129	49	52	47
AC-FT	39310	7460	8560	10150	11640	16120	17910	63840	20690	9190	6810	5150

CAL YR 1982 TOTAL 151194 MEAN 414 MAX 12400 MIN 12 AC-FT 299900
WTR YR 1983 TOTAL 109313 MEAN 299 MAX 8470 MIN 47 AC-FT 216800

06425100 ELK CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°14'25", long 103°09'03", in NE¼NE¼ sec.9, T.3 N., R.8 E., Meade County. Hydrologic Unit 10120110, on section line near right upstream corner of county road bridge, 1.7 mi downstream from Morris Creek tributary and 10 mi north of Exit 61 and I-90 northeast of Rapid City.

DRAINAGE AREA.--190 mi².

PERIOD OF RECORD.--November 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,950 ft, from topographic map.

REMARKS.--Records good except those for Dec. 7-19 and period of no gage-height record, May 24 to June 24, which are poor. Some flow is pumped from stream for irrigation. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,560 ft³/s May 20, 1982 (gage height, 10.79 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	1415	*1000	9.89	May 7	2345	163	7.13
Apr. 17	1415	104	6.63	May 13	1145	213	7.48

No flow Oct. 1-8.

CORRECTIONS.--The peak discharges listed below are additions to the annual maximum listed in WRD SD-82-1.

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 15	2100	729	9.29	May 29	0545	157	6.99

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.45	3.0	6.9	2.5	4.3	8.4	5.4	8.0	12	2.4	.66
2	.00	.74	3.2	7.0	2.9	3.8	5.9	16	7.4	11	1.9	.59
3	.00	.91	3.0	7.2	2.3	3.1	5.0	25	6.6	8.9	1.6	.53
4	.00	.85	3.1	7.5	2.4	2.5	4.5	12	4.5	7.8	1.5	.48
5	.00	1.0	3.4	8.1	2.3	3.7	4.3	7.6	4.0	7.1	1.4	.48
6	.00	1.4	3.3	9.6	2.1	4.8	4.8	6.3	4.3	6.6	1.3	.50
7	.00	1.6	2.5	11	2.0	4.0	5.4	49	4.8	5.8	1.3	.60
8	.00	1.6	1.6	11	2.0	4.0	5.7	109	4.5	5.1	1.2	.63
9	89	1.7	1.8	10	2.1	2.7	5.5	81	4.2	4.5	1.0	.52
10	675	1.9	2.0	12	2.3	2.8	5.2	78	4.5	4.1	.80	.43
11	172	2.1	1.9	14	2.4	3.5	5.3	76	4.8	3.4	.70	.41
12	32	2.2	2.1	16	2.7	4.5	6.5	78	5.2	3.3	.63	.44
13	9.0	2.0	2.2	18	3.1	5.5	4.5	148	6.0	3.4	.67	.57
14	4.5	1.9	2.3	17	3.4	5.7	8.6	98	5.6	3.1	.69	.73
15	2.2	1.9	2.3	6.8	3.8	4.3	9.1	70	6.4	2.8	1.4	.89
16	1.2	1.8	2.5	4.6	3.4	3.1	24	59	7.0	2.6	1.1	.86
17	.76	2.4	3.0	3.5	3.0	2.7	80	51	7.8	2.8	.94	.87
18	.52	2.7	3.3	3.0	3.1	3.0	53	46	9.0	2.9	.94	.75
19	.46	2.9	3.5	3.0	3.2	3.0	33	42	8.4	2.5	1.1	.71
20	.28	3.0	3.6	2.8	2.0	3.0	20	41	7.7	2.4	1.2	.71
21	.20	2.5	3.6	2.7	1.7	3.0	12	42	7.2	2.0	1.4	.89
22	.22	2.2	5.8	2.6	4.1	3.0	7.4	37	7.0	1.8	1.6	1.4
23	.28	2.0	8.1	2.6	4.6	2.7	5.7	34	6.6	1.9	1.7	1.6
24	.31	1.8	9.4	2.5	4.3	2.8	5.0	20	6.2	2.3	1.7	1.8
25	.24	1.9	6.7	2.7	4.1	3.0	4.5	12	5.9	3.1	1.6	1.8
26	.25	1.9	6.2	2.7	4.1	3.5	4.0	11	7.1	3.0	1.3	1.7
27	.35	2.1	6.7	2.7	4.1	3.7	3.4	9.7	7.4	2.6	1.1	1.6
28	.33	2.4	6.0	3.1	4.3	4.3	3.1	9.0	7.5	2.4	1.0	1.4
29	.27	2.6	5.8	3.4	---	5.5	3.2	8.8	7.8	2.0	.97	1.3
30	.32	2.9	5.9	3.0	---	8.8	3.4	8.4	8.3	2.0	.88	1.4
31	.37	---	6.4	3.1	---	20	---	8.2	---	2.2	.76	---
TOTAL	990.06	57.35	124.2	210.1	84.3	134.3	350.4	1298.4	191.7	127.4	37.78	27.25
MEAN	31.9	1.91	4.01	6.78	3.01	4.33	11.7	41.9	6.39	4.11	1.22	.91
MAX	675	3.0	9.4	18	4.6	20	80	148	9.0	12	2.4	1.8
MIN	.00	.45	1.6	2.5	1.7	2.5	3.1	5.4	4.0	1.8	.63	.41
AC-FT	1960	114	246	417	167	266	695	2580	380	253	75	54

CAL YR 1982 TOTAL 4271.94 MEAN 11.7 MAX 1060 MIN .00 AC-FT 8470
WTR YR 1983 TOTAL 3633.24 MEAN 9.95 MAX 675 MIN .00 AC-FT 7210

06425500 ELK CREEK NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°14'54", long 102°30'10", in SW¼NW¼ sec.1, T.3 N., R.13 E., Meade County, Hydrologic Unit 10120111, on left bank near downstream end of county highway bridge, 1.4 mi downstream from Hay Draw, 5.0 mi southeast of Elm Springs, and 7.0 mi upstream from mouth.

DRAINAGE AREA.--540 mi^2, approximately.

PERIOD OF RECORD.--July 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,304.49 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 2, 1976, nonrecording gage, and prior to Feb. 1, 1967, at site 350 ft downstream at present datum.

REMARKS.--Records good except those for winter period and those for period of no gage-height record, May 23 to June 27, which are poor..

AVERAGE DISCHARGE.--34 years, 23.0 ft^3/s (16,660 acre-ft/yr); median of yearly mean discharges, 20 ft^3/s (14,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,540 ft^3/s Mar. 29, 1952 (gage height, 10.61 ft), from floodmarks, site and datum then in use, from rating curve extended above 5,100 ft^3/s; maximum gage height, 12.33 ft May 21, 1982; no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 17 ft, at former site, in May 1920, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 10	1715	*1940	*9.38	May 13	1215	707	7.53

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	4.4	1.0	2.2	3.0	5.0	20	32	6.8	60	.00	.00
2	.10	2.4	1.4	2.0	3.5	4.7	14	240	6.0	34	.00	.00
3	.12	2.4	1.3	1.8	3.0	4.0	12	204	4.0	15	.00	.00
4	.08	2.0	1.6	2.1	2.8	3.1	11	101	2.5	5.2	.00	.00
5	.08	1.5	1.0	2.5	2.8	4.4	10	60	3.0	2.6	.00	.00
6	.02	1.5	.50	2.8	2.6	5.8	12	37	3.5	1.8	.00	.00
7	.00	1.0	.25	2.6	2.5	7.0	13	23	3.5	.84	.00	.00
8	.10	.84	.10	2.5	2.5	8.0	14	18	3.2	.14	.00	.00
9	193	.76	.20	2.5	2.5	9.0	13	60	3.0	.00	.00	.00
10	1440	.76	.30	2.3	2.8	10	12	125	2.7	22	.00	.00
11	1450	.68	.25	2.6	3.0	12	13	104	3.5	27	.00	.00
12	905	.58	.50	3.0	3.2	21	15	206	3.7	10	.00	.00
13	305	.47	1.0	3.5	3.8	36	11	562	4.0	7.3	.00	.00
14	138	1.0	1.5	3.0	3.9	30	15	438	4.5	28	.00	.00
15	80	.56	1.7	3.0	4.7	20	30	329	4.0	21	.00	.00
16	52	.86	1.5	3.5	4.2	16	142	187	5.0	12	.00	.00
17	35	.59	1.7	3.0	3.7	12	311	127	6.0	7.6	.00	.00
18	24	.76	1.9	3.5	3.8	10	335	42	7.0	6.3	2.0	.00
19	16	.93	1.8	3.5	3.8	7.6	254	39	6.0	1.9	.52	.00
20	12	1.0	1.7	3.4	2.6	7.2	142	104	5.5	.10	.15	.00
21	9.7	.76	1.6	3.3	2.1	7.2	82	133	5.0	.00	.00	.00
22	7.6	.42	1.8	3.2	5.0	7.2	50	92	4.5	.00	.00	.00
23	6.4	.20	2.0	3.2	5.6	6.4	16	7.4	4.3	.00	.00	.00
24	5.4	.12	1.7	3.0	5.0	6.7	9.6	8.6	4.0	.00	.00	.00
25	4.4	.25	1.5	3.2	5.0	7.0	6.4	8.0	3.8	.00	.00	.00
26	4.1	.35	1.4	3.2	5.0	8.2	3.1	7.8	3.5	.00	.00	.00
27	4.4	.45	1.3	3.3	5.0	8.9	2.3	7.6	4.7	.00	.00	.00
28	8.4	.50	1.3	3.7	5.3	10	1.7	7.4	4.4	.00	.00	.00
29	8.4	.60	1.4	4.0	---	13	1.5	7.4	3.5	.00	.00	.00
30	7.6	.70	1.6	3.8	---	21	1.5	7.2	3.9	.00	.00	.03
31	5.7	---	1.9	3.2	---	47	---	7.0	---	.00	.00	---
TOTAL	4722.80	29.34	38.70	92.4	102.7	375.4	1573.1	3331.4	129.0	262.78	2.67	.03
MEAN	152	.98	1.25	2.98	3.67	12.1	52.4	107	4.30	8.48	.086	.001
MAX	1450	4.4	2.0	4.0	5.6	47	335	562	7.0	60	2.0	.03
MIN	.00	.12	.10	1.8	2.1	3.1	1.5	7.0	2.5	.00	.00	.00
AC-FT	9370	58	77	183	204	745	3120	6610	256	521	5.3	.06

CAL YR 1982 TOTAL 21672.78 MEAN 59.4 MAX 3880 MIN .00 AC-FT 42990
WTR YR 1983 TOTAL 10660.32 MEAN 29.2 MAX 1450 MIN .00 AC-FT 21140

06427000 KEYHOLE RESERVOIR NEAR MOORCROFT, WY

LOCATION.--Lat 44°22'55", long 104°46'45", in NW¼NW¼ sec.27, T.51 N., R.66 W., Crook County, Hydrologic Unit 10120201, at reservoir dam on Belle Fourche River 12 mi northeast of Moorcroft.

DRAINAGE AREA.--2,000 mi², approximately.

PERIOD OF RECORD.--March 1952 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to May 15, 1958, and Oct. 1, 1968, to Mar. 13, 1970, nonrecording gages, and May 15, 1958, to Sept. 30, 1968, water-stage recorder, all at present site and datum.

REMARKS.--Reservoir is formed by a zoned earth-fill dam completed by the Bureau of Reclamation Oct. 25, 1952. Storage began Feb. 12, 1952. Inactive storage, between elevations 4,036.0 ft and 4,051.0 ft, 7,950 acre-ft. Total capacity below elevation 4,099.3 ft (crest of spillway), 185,800 acre-ft. Siltation has eliminated dead storage. Figures given herein represent active contents. The reservoir provides flood control and water for irrigation in Wyoming and near Belle Fourche, SD.

COOPERATION.--Records furnished by the Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 200,744 acre-ft May 21, 1978 (elevation, 4,100.38 ft); minimum daily contents (since appreciable storage was attained), 6,030 acre-ft Mar. 8, 9, 1955 (elevation, 4,046.35 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 60,818 acre-ft May 18, 19 (elevation, 4,079.73 ft); minimum, 41,028 acre-ft Sept. 21 (elevation, 4,074.10 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	4076.24	47983	
Oct. 31	4076.90	50269	+2286
Nov. 30	4077.26	51544	+1275
Dec. 31	4077.37	51938	+394
CAL YR 1982			+18282
Jan. 31	4077.76	53347	+1409
Feb. 28	4079.24	58905	+5558
Mar. 31	4079.55	60111	+1206
Apr. 30	4079.68	60621	+510
May 31	4079.65	60504	-117
June 30	4079.21	58789	-1715
July 31	4076.50	48876	-9913
Aug. 31	4074.87	43447	-5429
Sept. 30	4074.59	42556	-891
WTR YR 1983			-5427

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°44'59", long 104°02'49", in NE¼NW¼NW¼ sec.18, T.9 N., R.1 E., Butte County, Hydrologic Unit 10120202, on left bank 0.3 mi downstream from State line, 3.7 mi downstream from Oak Creek and 11 mi northwest of Belle Fourche, SD.

DRAINAGE AREA.--3,280 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1946 to current year. Records for water year 1947 incomplete, yearly estimate published in WSP 1729.

GAGE.--Water-stage recorder. Datum of gage is 3,095.7 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, which are poor. Diversions above station for irrigation of about 5,400 acres. Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft, 143 mi upstream since Oct. 25, 1952. Water-quality records for the station are published in the annual report "Water Resources Data for Wyoming."

AVERAGE DISCHARGE.--37 years, 90.0 ft^3/s (65,200 acre-ft/yr); median of yearly mean discharges, 88 ft^3/s (63,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,400 ft^3/s June 18, 1962 (gage height, 15.59 ft); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,100 ft^3/s at 0230 hours, Oct. 10 (gage height, 8.20 ft); minimum daily, 19 ft^3/s Oct. 6, Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	41	35	39	50	169	145	155	76	32	121	39
2	22	38	33	39	50	178	105	145	74	40	100	38
3	20	37	32	39	50	158	100	134	73	163	98	35
4	20	43	33	40	55	148	89	124	67	178	111	36
5	24	40	34	43	55	149	85	116	65	171	134	36
6	19	39	31	47	55	190	81	114	61	164	106	36
7	20	38	28	50	58	188	75	170	57	161	92	36
8	28	38	29	54	60	148	73	159	60	157	87	36
9	419	39	30	50	62	135	70	204	53	162	82	36
10	568	40	30	50	65	118	70	184	50	157	82	36
11	164	39	29	50	70	107	68	166	49	142	81	37
12	162	39	31	50	80	143	81	178	62	128	82	40
13	206	41	33	55	90	460	98	234	53	117	87	36
14	135	38	35	60	80	368	99	258	51	110	75	30
15	84	40	34	60	80	239	134	201	62	109	77	27
16	66	40	32	58	80	207	163	190	56	115	85	24
17	65	38	34	56	80	168	141	190	55	121	87	23
18	54	37	36	55	85	138	127	179	53	122	105	23
19	51	37	36	55	90	127	130	159	53	118	94	23
20	51	35	33	55	90	115	137	139	52	116	91	23
21	53	35	37	50	100	105	153	138	53	106	88	22
22	50	33	37	50	110	91	159	143	60	101	220	22
23	46	33	37	50	120	96	170	127	53	95	131	21
24	43	31	35	50	140	86	173	115	48	102	85	21
25	38	33	34	50	140	88	183	106	47	110	76	21
26	39	33	34	55	160	90	186	108	42	111	62	21
27	39	33	34	55	171	102	192	100	38	104	54	23
28	41	33	35	60	172	128	189	95	30	107	51	21
29	44	35	35	60	---	128	176	88	29	109	46	19
30	45	35	37	60	---	202	166	84	29	115	43	20
31	46	---	39	55	---	182	---	80	---	131	41	---
TOTAL	2684	1111	1044	1600	2498	4951	3818	4583	1611	3774	2774	861
MEAN	86.6	37.0	33.7	51.6	89.2	160	127	148	53.7	122	89.5	28.7
MAX	568	43	39	60	172	460	192	258	76	178	220	40
MIN	19	31	28	39	50	86	68	80	29	32	41	19
AC-FT	5320	2200	2070	3170	4950	9820	7570	9090	3200	7490	5500	1710

CAL YR 1982 TOTAL 31798.6 MEAN 87.1 MAX 2410 MIN 2.5 AC-FT 63070
WTR YR 1983 TOTAL 31309.0 MEAN 85.8 MAX 568 MIN 19 AC-FT 62100

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 26...	0915	20	2000	--	7.0	--	--	--	640	470	170
JAN 18...	1030	55	1900	--	.0	--	--	--	650	530	170
APR 12...	1245	213	1160	--	5.0	--	--	--	850	680	220
JUL 20...	1450	71	--	--	31.0	--	--	--	480	300	120

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
OCT 26...	53	96	24	2	6.3	170	610	5.2	.00	7.7	--
JAN 18...	54	110	27	2	8.9	120	750	6.4	.90	9.9	--
APR 12...	72	110	22	2	8.3	170	900	6.4	.90	5.3	--
JUL 20...	43	130	37	3	9.4	180	530	21	.30	6.4	--

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT 26...	1100	1.4	57	.000	.010	--	--	--	--	--
JAN 18...	1200	1.6	176	.100	.010	--	--	--	--	--
APR 12...	1400	1.9	819	.000	.240	--	--	--	--	--
JUL 20...	970	1.3	186	.000	.070	--	--	--	--	--

06429905 SAND CREEK NEAR RANCH A, NEAR BEULAH, WY

LOCATION.--Lat 44°31'13", long 104°05'00", in SE¼SW¼ sec.5, T.52 N., R.60 W., Crook County, Hydrologic Unit 10120203, on left bank 1.0 mi upstream from Bear Gulch, and 1.6 mi south of Beulah.

DRAINAGE AREA.--267 mi².

PERIOD OF RECORD.--October 1976 to September 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,600 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 24.1 ft³/s (17,460 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 514 ft³/s May 16, 1982 (gage height, 7.35 ft); minimum daily, 14 ft³/s Jan. 13, 14, Feb. 11-16, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 700 ft³/s June 15, 1976 (gage height, 7.77 ft), from slope-area measurement of peak flow at site 3 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 71 ft³/s at 0600 hours, May 7 (gage height, 5.58 ft); minimum daily, 17 ft³/s Feb. 21, Mar. 20, 21, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	21	23	23	20	21	21	22	34	31	27	24
2	21	21	23	23	20	21	21	22	33	31	28	24
3	21	21	23	23	20	21	21	22	33	31	28	24
4	21	21	22	23	21	21	21	22	33	31	28	24
5	21	21	22	23	21	21	21	22	33	31	27	25
6	21	21	23	24	21	21	22	26	33	31	27	24
7	21	21	18	24	20	21	21	66	32	31	27	24
8	21	21	23	23	20	21	22	54	30	31	26	24
9	22	21	23	23	20	21	22	58	30	30	26	24
10	22	22	24	22	19	20	22	60	31	30	26	23
11	22	22	23	22	19	20	22	50	27	30	26	24
12	21	22	23	22	19	20	21	45	24	30	25	23
13	21	22	24	22	19	20	20	40	24	30	25	23
14	21	22	23	22	19	20	18	35	23	30	26	23
15	21	22	23	22	20	21	16	33	24	30	25	23
16	21	22	23	22	20	19	18	30	29	30	26	23
17	21	22	24	22	20	18	19	31	29	29	26	24
18	21	22	24	23	21	18	20	31	30	29	25	23
19	21	21	23	23	20	18	21	36	31	28	25	23
20	21	23	23	23	19	17	23	40	30	28	26	23
21	21	23	24	23	17	17	23	40	28	28	25	23
22	21	23	23	22	18	18	23	40	29	28	25	23
23	21	23	23	22	18	17	22	38	29	28	25	22
24	22	22	23	22	18	19	22	35	31	28	25	22
25	22	22	22	22	18	21	26	34	31	28	25	21
26	21	22	23	22	21	21	31	33	31	28	25	21
27	21	22	23	22	21	22	29	33	31	28	25	21
28	21	23	23	22	21	22	26	33	31	29	25	22
29	21	23	23	22	---	21	24	33	31	28	25	22
30	21	22	23	22	---	21	22	33	31	28	24	22
31	21	---	23	22	---	21	---	34	---	27	24	---
TOTAL	656	656	710	697	550	620	662	1131	896	910	798	691
MEAN	21.2	21.9	22.9	22.5	19.6	20.0	22.1	36.5	29.9	29.4	25.7	23.0
MAX	22	23	24	24	21	22	31	66	34	31	28	25
MIN	21	21	18	22	17	17	18	22	23	27	24	21
AC-FT	1300	1300	1410	1380	1090	1230	1310	2240	1780	1800	1580	1370

CAL YR 1982 TOTAL 8584 MEAN 23.5 MAX 322 MIN 14 AC-FT 17030
WTR YR 1983 TOTAL 8977 MEAN 24.6 MAX 66 MIN 17 AC-FT 17810

06430000 MURRAY DITCH AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'35", long 104°02'58", in SW¼SW¼ sec.7, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on right bank 15 ft downstream from State line and 12 mi southwest of Belle Fourche, SD.

PERIOD OF RECORD.--June 1954 to current year (irrigation seasons only prior to October 1959).

GAGE.--Water-stage recorder. Altitude of gage is 3,440 ft, from topographic map.

REMARKS.--Records fair. Ditch diverts water from left bank of Redwater Creek, 2.0 mi upstream, for irrigation of about 700 acres. Flow maintained during irrigation season only. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 37 ft³/s July 17, 1973; no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 31 ft³/s July 24-26 (gage height, 2.75 ft); no flow for long periods.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	.00	.00	.00	.00	.00	.00	.00	.00	5.5	27	9.4
2	7.5	.00	.00	.00	.00	.00	.00	.00	.00	4.8	28	9.6
3	7.7	.00	.00	.00	.00	.00	.00	.00	.00	4.4	9.9	10
4	7.6	.00	.00	.00	.00	.00	.00	.00	.00	4.2	.00	10
5	7.9	.00	.00	.00	.00	.00	.00	.00	.00	4.3	.00	12
6	7.8	.00	.00	.00	.00	.00	.00	.00	.00	4.5	.00	14
7	7.8	.00	.00	.00	.00	.00	.00	.00	.00	4.8	.00	15
8	7.4	.00	.00	.00	.00	.00	.00	.00	.00	4.5	9.4	15
9	.77	.00	.00	.00	.00	.00	.00	.00	.00	4.6	13	15
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.1	12	15
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	13	11	16
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	14	12	16
13	.00	.00	.00	.00	.00	.00	.00	.00	4.6	18	11	13
14	.00	.00	.00	.00	.00	.00	.00	.00	7.2	19	15	9.5
15	.00	.00	.00	.00	.00	.00	.00	.00	6.8	21	19	9.5
16	.00	.00	.00	.00	.00	.00	.00	.00	3.7	22	24	9.4
17	.00	.00	.00	.00	.00	.00	.00	.00	3.7	28	25	9.2
18	.00	.00	.00	.00	.00	.00	.00	.00	3.2	24	23	9.8
19	.00	.00	.00	.00	.00	.00	.00	.00	1.9	24	19	10
20	.00	.00	.00	.00	.00	.00	.00	.00	1.9	24	30	10
21	.00	.00	.00	.00	.00	.00	.00	.00	1.9	23	28	12
22	.00	.00	.00	.00	.00	.00	.00	.00	1.9	25	22	13
23	.00	.00	.00	.00	.00	.00	.00	.00	1.9	29	22	13
24	.00	.00	.00	.00	.00	.00	.00	.00	2.3	31	18	14
25	.00	.00	.00	.00	.00	.00	.00	.00	2.7	31	17	20
26	.00	.00	.00	.00	.00	.00	.00	.00	9.3	31	17	21
27	.00	.00	.00	.00	.00	.00	.00	.00	21	30	16	24
28	.00	.00	.00	.00	.00	.00	.00	.00	9.3	28	16	17
29	.00	.00	.00	.00	---	.00	.00	.00	8.5	26	16	7.8
30	.00	.00	.00	.00	---	.00	.00	.00	6.2	26	14	7.8
31	.00	---	.00	.00	---	.00	---	.00	---	26	10	---
TOTAL	61.97	.00	.00	.00	.00	.00	.00	.00	98.00	562.7	484.30	387.0
MEAN	2.00	.000	.000	.000	.000	.000	.000	.000	3.27	18.2	15.6	12.9
MAX	7.9	.00	.00	.00	.00	.00	.00	.00	21	31	30	24
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.2	.00	7.8
AC-FT	123	.00	.00	.00	.00	.00	.00	.00	194	1120	961	768

CAL YR 1982 TOTAL 1149.88 MEAN 3.15 MAX 22 MIN .00 AC-FT 2280
WTR YR 1983 TOTAL 1593.97 MEAN 4.37 MAX 31 MIN .00 AC-FT 3160

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'26", long 104°02'54", in NW¼NW¼ sec.18, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on left bank 800 ft downstream from State line, 5.7 mi upstream from Crow Creek, and 12 mi southwest of Belle Fourche, SD.

DRAINAGE AREA.--471 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1929 to September 1931 and February 1936 to July 1937 (published as "near Beulah, WY"), June 1954 to current year.

REVISED RECORDS.--WSP 1309: 1931(M), 1936-37(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,410 ft, from topographic map. Apr. 25, 1929, to Sept. 30, 1931, and Feb. 28, 1936, to July 31, 1937, nonrecording gage at site 2 mi upstream at different datum.

REMARKS.--Records good. Large diversions for irrigation above station. Total flow passing State line may be obtained by adding flow of Murray ditch (see station 06430000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--31 years, 36.0 ft^3/s (26,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,440 ft^3/s Aug. 22, 1973 (gage height, 12.19 ft), from rating curve extended above 1,000 ft^3/s on basis of slope-area measurement at gage height 11.95 ft; no flow Aug. 13-15, 1929.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 168 ft^3/s at 0700 hours, May 7 (gage height, 3.83 ft), no other peak above base of 150 ft^3/s; minimum daily, 1.4 ft^3/s Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	36	35	34	35	32	37	58	53	30	18	25
2	25	36	36	33	35	32	38	53	52	33	19	25
3	24	36	35	34	35	32	39	48	51	35	29	25
4	24	36	35	33	35	33	39	46	51	35	42	26
5	24	36	35	34	34	35	38	48	51	35	41	28
6	24	37	35	34	33	34	38	49	49	35	41	23
7	25	37	34	34	33	33	38	143	48	28	40	22
8	30	37	34	34	33	33	38	133	49	33	40	22
9	48	37	34	35	33	33	38	121	49	34	12	22
10	41	36	33	34	33	32	38	133	50	31	1.4	21
11	37	37	34	34	32	33	37	107	51	16	3.7	21
12	34	36	34	32	32	33	40	98	51	11	5.5	21
13	30	37	35	32	32	34	40	80	45	8.1	6.6	23
14	30	36	34	34	32	35	40	67	39	8.4	8.3	26
15	29	36	34	36	32	35	40	63	39	9.9	9.4	25
16	29	36	34	36	32	35	40	62	46	14	12	25
17	30	36	34	36	32	38	40	62	48	13	15	24
18	30	36	33	37	32	38	39	60	49	11	10	24
19	31	35	34	36	33	38	41	70	49	11	12	25
20	34	35	34	36	33	38	44	79	49	11	21	26
21	34	35	34	35	32	38	50	77	49	12	9.7	27
22	33	34	34	35	32	38	53	74	48	13	12	28
23	34	35	34	35	32	38	53	73	47	8.5	16	28
24	34	34	35	35	32	35	54	66	46	9.3	20	28
25	34	34	34	35	32	36	75	62	44	8.7	18	28
26	35	34	34	35	32	38	95	58	38	9.1	18	26
27	36	34	35	36	32	36	78	54	15	11	18	26
28	36	35	35	36	32	35	69	50	27	15	19	26
29	35	35	34	35	---	36	64	51	26	18	18	27
30	36	35	34	35	---	35	60	51	28	20	13	27
31	35	---	34	35	---	37	---	52	---	19	19	---
TOTAL	988	1069	1063	1075	917	1088	1433	2248	1337	586.0	567.6	750
MEAN	31.9	35.6	34.3	34.7	32.8	35.1	47.8	72.5	44.6	18.9	18.3	25.0
MAX	48	37	36	37	35	38	95	143	53	35	42	28
MIN	24	34	33	32	32	32	37	46	15	8.1	1.4	21
AC-FT	1960	2120	2110	2130	1820	2160	2840	4460	2650	1160	1130	1490

CAL YR 1982 TOTAL 13365.8 MEAN 36.6 MAX 543 MIN 2.9 AC-FT 26510
WTR YR 1983 TOTAL 13121.6 MEAN 35.9 MAX 143 MIN 1.4 AC-FT 26030

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-70, 1972 to current year.

REMARKS.--Records prior to 1983 water year in files of Wyoming District office.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	1500	24	10.5	22	1.4	69
NOV						
08...	1435	37	7.0	31	3.1	68
DEC						
06...	1450	35	4.5	12	1.1	67
JAN						
17...	1515	36	3.5	--	--	--
MAR						
14...	1445	36	8.0	31	3.0	76
APR						
11...	1600	36	9.0	39	3.8	95
MAY						
23...	1110	74	12.5	85	17	71
JUN						
22...	1525	46	19.5	11	1.4	73
JUL						
13...	1530	7.8	22.0	20	.42	32
SEP						
07...	1600	21	17.0	13	.74	77

06431500 SPEARFISH CREEK AT SPEARFISH, SD

LOCATION.--Lat 44°28'57", long 103°51'40", in SE¼NW¼ sec.15, T.6 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank in city park in Spearfish, 500 ft downstream from fish hatchery and nearest tributary, and 9.8 mi upstream from mouth.

DRAINAGE AREA.--168 mi^2.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1116: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,640 ft, from topographic map. Prior to Dec. 5, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Regulation by fish hatchery and by hydroelectric plant 0.5 mi upstream causes diurnal fluctuation, but since storage capacity is small, daily flows are not appreciably affected. Upstream diversions out of drainage basin to Whitewood Creek basin by the Homestake Mining Co. average about 10 ft^3/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Several observations of water temperature and specific conductance were made during the year.

COOPERATION.--Figures of monthly diversion are furnished by Homestake Mining Co.

AVERAGE DISCHARGE.--37 years, 52.7 ft^3/s (38,180 acre-ft/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,240 ft^3/s May 15, 1965 (gage height, 10.53 ft), from rating curve extended above 520 ft^3/s on basis of slope-area measurement of peak flow; maximum gage height, 10.54 ft June 15, 1976; no flow for part of Oct. 18, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1904, reached a stage of 7.00 ft, site and datum of former gage near Spearfish, 1 mi upstream, drainage area, 157 mi^2; discharge about 5,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 500 ft^3/s at 0200 hours, May 8 (gage height, 7.66 ft); minimum daily, 24 ft^3/s Dec. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	48	45	37	31	38	60	163	125	71	51	42
2	56	55	45	31	33	42	57	177	120	71	49	45
3	51	55	50	33	33	50	60	177	116	73	51	45
4	47	46	54	36	31	56	60	177	111	75	51	45
5	50	52	58	38	32	60	57	174	108	68	51	45
6	44	62	54	36	28	54	56	182	105	69	53	46
7	40	62	52	36	28	50	55	356	101	70	52	46
8	40	68	24	35	32	48	56	317	102	60	50	43
9	35	60	32	33	40	48	58	325	105	60	46	42
10	42	60	37	30	42	52	58	310	108	61	47	42
11	50	58	33	36	35	60	62	230	103	61	47	43
12	51	47	37	35	32	68	62	182	101	56	45	46
13	53	45	42	34	30	70	57	156	98	55	45	45
14	57	39	40	35	29	73	56	140	92	52	49	44
15	64	36	37	34	29	70	60	137	80	52	49	46
16	73	37	42	32	30	70	61	123	80	5[illegible]	53	45
17	83	39	44	31	30	68	64	143	80	58	51	44
18	84	41	44	31	31	65	65	154	78	55	50	46
19	74	43	43	32	32	64	77	160	77	52	51	46
20	61	41	42	33	32	64	89	179	74	49	47	47
21	54	32	42	32	32	63	98	180	76	48	49	48
22	53	30	44	32	30	61	108	175	80	51	54	48
23	50	28	43	33	33	60	106	162	81	53	50	47
24	51	31	43	37	35	60	106	153	79	53	50	47
25	62	35	39	33	40	57	136	148	78	53	47	49
26	69	40	37	34	45	56	222	145	77	52	46	47
27	56	45	37	34	42	55	167	137	82	52	44	47
28	39	50	35	36	40	55	166	129	77	50	47	48
29	35	50	37	36	---	52	156	125	76	52	45	48
30	33	50	39	31	---	55	153	124	74	58	45	51
31	39	---	41	33	---	57	---	126	---	52	45	---
TOTAL	1657	1385	1292	1049	937	1801	2648	5566	2744	1797	1510	1373
MEAN	53.5	46.2	41.7	33.8	33.5	58.1	88.3	180	91.5	58.0	48.7	45.8
MAX	84	68	58	38	45	73	222	356	125	75	54	51
MIN	33	28	24	30	28	38	55	123	74	48	44	42
AC-FT	3290	2750	2560	2080	1860	3570	5250	11040	5440	3560	3000	2720

CAL YR 1982 TOTAL 32285 MEAN 88.5 MAX 1430 MIN 12 AC-FT 64040
WTR YR 1983 TOTAL 23759 MEAN 65.1 MAX 356 MIN 24 AC-FT 47130

06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD

LOCATION.--Lat 44°40'02", long 103°50'20", in NW¼SE¼ sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank at upstream side of bridge on U.S. Highway 212 in Belle Fourche, 0.5 mi upstream from Hay Creek and 0.9 mi upstream from mouth.

DRAINAGE AREA.--920 mi^2.

PERIOD OF RECORD.--November 1945 to current year. Records for water year 1946 incomplete, yearly discharge published in WSP 1309. Prior to October 1960, published as Redwater Creek above Belle Fourche.

REVISED RECORDS.--WSP 1389: 1954 (maximum gage height only).

GAGE.--Water-stage recorder. Altitude of gage is 3,000 ft, from topographic map. Prior to Dec. 13, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period and those for period of no gage-height record, Oct. 1 to Nov. 9, which are poor. Diversions for irrigation of about 13,000 acres above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 137 ft^3/s (99,260 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 ft^3/s June 16, 1962 (gage height, 11.69 ft), from rating curve extended above 6,000 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in 1960, 1968-69, 1981-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 10	--	a620	--	May 10	1030	*912	*4.30

a Estimated daily discharge.
Minimum daily discharge, 13 ft^3/s July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	250	168	146	163	190	211	362	253	55	31	60
2	150	245	171	144	166	190	192	358	244	53	32	67
3	150	235	168	140	161	191	171	359	227	60	31	74
4	140	215	169	144	163	194	194	359	224	61	43	95
5	135	200	171	144	163	208	194	366	222	58	55	92
6	150	200	160	160	161	214	186	380	214	50	55	88
7	150	190	160	156	158	206	181	626	206	47	55	84
8	215	180	150	153	166	206	181	664	196	39	53	80
9	480	178	140	156	166	203	178	678	195	34	50	94
10	620	176	150	146	166	208	178	711	189	25	45	100
11	500	176	154	156	166	211	184	626	185	22	36	105
12	350	173	161	151	168	214	203	568	192	18	25	109
13	310	176	161	161	171	260	203	501	201	15	25	112
14	340	174	151	161	171	246	203	435	198	14	23	113
15	340	173	154	154	170	220	222	388	193	41	23	120
16	330	173	156	154	171	202	255	364	201	50	24	117
17	320	175	166	151	175	200	347	350	209	52	23	118
18	320	174	170	156	176	200	357	332	210	52	27	126
19	310	175	158	156	180	200	285	346	208	33	31	130
20	300	180	152	156	182	197	281	365	178	18	52	139
21	295	175	150	156	181	197	296	365	166	17	59	141
22	280	173	152	156	181	197	310	353	158	13	77	144
23	290	168	151	158	184	194	304	331	146	19	82	152
24	280	170	154	158	184	194	312	313	118	33	83	150
25	280	165	146	158	184	194	333	302	99	33	81	152
26	275	163	144	157	187	206	399	293	87	30	82	152
27	275	163	151	158	187	203	418	286	80	26	78	149
28	265	166	137	161	188	200	391	282	72	16	74	146
29	255	168	146	166	---	200	371	274	74	20	76	150
30	260	166	149	168	---	208	363	276	64	25	73	153
31	255	---	146	166	---	242	---	262	---	26	70	---
TOTAL	8785	5495	4816	4807	4639	6395	7903	12475	5207	1055	1574	3512
MEAN	283	183	155	155	173	206	263	402	174	34.0	50.8	117
MAX	620	250	171	168	188	260	418	711	253	61	83	153
MIN	135	163	137	140	158	190	171	262	64	13	23	60
AC-FT	17430	10900	9550	9530	9600	12680	15680	24740	10330	2090	3120	6970

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CAL YR 1982  TOTAL  77313.08   MEAN 212   MAX  5790   MIN   .00   AC-FT  153400
WTR YR 1983  TOTAL  66863.00   MEAN 183   MAX   711   MIN 13      AC-FT  132600
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06433500 HAY CREEK AT BELLE FOURCHE, SD

LOCATION.--Lat 44°40'01", long 103°50'46", in NW¼SW¼ sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank at intersection of Tenth Avenue and Jackson Street in Belle Fourche, 0.5 mi upstream from mouth.

DRAINAGE AREA.--121 mi^2.

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,005.18 ft National Geodetic Vertical Datum of 1929 (City of Belle Fourche bench mark). Prior to Dec. 8, 1953, nonrecording gage at site 300 ft downstream at same datum.

REMARKS.--Records good except those for winter periods and those for period of no gage-height record, Jan. 30 to Mar. 14, which are poor. Minor diversion to the stream at times from city reservoir overflow, which enters stream above gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--30 years, 1.55 ft^3/s (1,120 acre-ft/yr); median of yearly mean discharges, 1.0 ft^3/s (720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 930 ft^3/s June 19, 1972 (gage height, 9.15 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 9	2245	*156	*6.18	Apr. 16	2330	82	5.49

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	.69	.58	.46	.74	1.3	5.7	3.0	.87	.00	.00	.00
2	.57	.61	.50	.44	.78	1.5	7.8	3.0	.80	.00	.00	.00
3	.27	.56	.48	.39	.86	1.6	5.6	2.3	.92	.00	.00	.00
4	.25	.45	.46	.52	.78	3.0	4.6	2.1	.81	.00	.00	.18
5	.15	.50	.45	.54	.64	8.0	3.8	2.0	.75	.00	.00	.00
6	.16	.55	.43	.68	.49	18	3.7	2.2	.66	.00	.00	.00
7	.28	.51	.40	.64	.58	17	3.2	3.2	.63	.00	.00	.00
8	10	.57	.28	.64	.80	15	3.1	2.2	.71	.00	.00	.00
9	102	.66	.32	.56	1.3	14	2.7	2.1	.62	.00	.00	.00
10	90	.60	.30	.44	2.0	12	2.5	2.1	.58	.00	.00	.00
11	14	.53	.32	.46	1.2	10	2.8	2.0	.54	.00	.00	.00
12	6.0	.39	.37	.56	1.0	9.0	4.8	3.9	.59	.00	.00	.00
13	4.4	.34	.36	.60	.88	7.0	4.8	6.3	.57	.00	.00	.00
14	2.6	.34	.33	.64	.82	6.8	4.3	4.0	.57	.00	.00	.00
15	2.0	.38	.36	.62	.78	4.5	7.6	4.1	.43	.00	.00	.00
16	1.8	.41	.39	.60	.82	3.9	47	3.8	.34	.00	.00	.00
17	1.5	.65	.60	.58	.88	2.9	50	2.7	.46	.00	.00	.00
18	1.3	.69	1.1	.60	1.0	2.5	20	2.6	.46	.00	.00	.00
19	1.1	.80	.70	.58	1.1	2.2	10	2.8	.43	.00	.00	.00
20	.77	1.0	.64	.60	1.0	2.1	6.4	2.4	.38	.00	.34	.00
21	.50	.68	.60	.62	.95	2.0	5.1	2.0	.29	.00	.02	.00
22	.38	.60	.56	.64	.90	1.9	4.7	1.9	.13	.00	.75	.00
23	.48	.56	.52	.62	.92	1.8	3.7	1.9	.04	.00	.00	.00
24	.48	.52	.48	.58	.98	1.8	3.8	1.6	.00	.00	.00	.00
25	.56	.56	.41	.52	1.0	2.0	3.2	1.4	.00	.00	.00	.00
26	.54	.55	.38	.68	1.3	2.8	2.9	1.4	.00	.00	.00	.00
27	.68	.71	.40	.76	1.2	3.1	2.5	1.2	.00	.00	.00	.00
28	.99	.97	.49	.80	1.2	2.7	2.8	1.1	.00	.00	.00	.00
29	.87	.63	.45	.80	---	3.6	2.9	.96	.00	.91	.00	.00
30	.71	.76	.44	.70	---	11	2.7	1.0	.00	.05	.00	.00
31	.63	---	.54	.70	---	11	---	1.1	---	.00	.00	---
TOTAL	247.57	17.77	14.64	18.57	26.90	186.0	234.7	74.36	12.58	.96	1.11	.18
MEAN	7.99	.59	.47	.60	.96	6.00	7.82	2.40	.42	.031	.036	.006
MAX	102	1.0	1.1	.80	2.0	18	50	6.3	.92	.91	.75	.18
MIN	.15	.34	.28	.39	.49	1.3	2.5	.96	.00	.00	.00	.00
AC-FT	491	35	29	37	53	369	466	147	25	1.9	2.2	.4

CAL YR 1982 TOTAL 2052.14 MEAN 5.62 MAX 523 MIN .00 AC-FT 4070
WTR YR 1983 TOTAL 835.34 MEAN 2.29 MAX 102 MIN .00 AC-FT 1660

06434500 INLET CANAL NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°42'14", long 103°49'23", in NE¼NW¼ sec.36, T.9 N., R.2 E., Butte County, Hydrologic Unit 10120202, on right bank 0.5 mi downstream from Crow Creek, 0.9 mi downstream from diversion dam on Belle Fourche River, and 2.5 mi northeast of Belle Fourche.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly diversions from Inlet Canal between station and reservoir for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,985.22 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 10, 1946, nonrecording gage, and Dec. 10, 1946, to Nov. 26, 1949, water-stage recorder at site 0.8 mi upstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. Records show actual diversions to Belle Fourche Reservoir (see station 06435000), from Belle Fourche River and Crow Creek, except for 6,580 acre-ft which was diverted for irrigation from the canal between the station and reservoir.

COOPERATION.--Records of diversion from the canal furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--38 years, 164 ft³/s (118,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,410 ft³/s May 16, 1982; no flow for many days in 1946-49, 1963, 1966, 1971-76, 1978-79, 1982-83.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	208	292	176	150	170	.00	.00	.00	352	78	153	110
2	188	281	176	140	171	.00	.00	.00	341	78	129	118
3	182	271	177	140	170	.00	.00	.00	306	117	124	126
4	169	265	177	145	164	.00	.00	.00	294	211	150	158
5	163	259	178	149	160	.00	.00	.00	288	223	181	152
6	173	253	178	195	162	.00	.00	.00	271	204	178	126
7	173	247	178	251	163	.00	.00	.00	246	197	155	121
8	245	238	178	303	154	.00	.00	.00	228	186	148	118
9	914	229	170	318	152	.00	.00	.00	226	170	136	122
10	1210	221	170	277	146	.00	.00	.00	223	162	125	118
11	922	216	160	283	146	.00	.00	.00	209	147	124	120
12	546	211	150	268	146	.00	.00	.00	203	135	102	134
13	539	206	160	308	149	.00	.00	.00	223	129	101	143
14	498	201	160	368	155	.00	.00	.00	203	122	98	136
15	431	196	160	308	169	.00	.00	.00	205	149	92	134
16	408	193	167	257	194	.00	.00	.00	216	169	95	134
17	395	190	159	225	206	.00	.00	.00	211	185	105	132
18	384	188	215	227	168	.00	.00	.00	211	183	118	144
19	372	187	187	192	96	.00	.00	.00	216	152	133	145
20	362	186	193	190	90	.00	.00	.00	200	123	144	148
21	354	166	182	187	85	.00	.00	.00	190	127	149	156
22	347	183	173	181	35	.00	.00	.00	180	118	184	160
23	340	180	168	177	.00	.00	.00	.00	170	120	300	168
24	333	178	162	173	.00	.00	.00	.00	152	133	205	165
25	328	177	161	170	.00	.00	.00	.00	141	135	182	168
26	323	177	162	166	.00	.00	.00	.00	121	127	158	166
27	319	176	162	163	.00	.00	.00	.00	107	122	140	159
28	317	175	178	161	.00	.00	.00	.00	103	107	132	154
29	311	176	170	165	---	.00	.00	.00	109	122	133	167
30	305	176	160	166	---	.00	.00	.00	94	125	131	157
31	300	---	160	165	---	.00	---	251	---	131	131	---
TOTAL	12059	6314	5307	6568	3251.00	.00	.00	251.00	6239	4487	4436	4259
MEAN	389	210	171	212	116	.000	.000	8.10	208	145	143	142
MAX	1210	292	215	368	206	.00	.00	251	352	223	300	168
MIN	163	175	150	140	.00	.00	.00	.00	94	78	92	110
AC-FT	23920	12520	10530	13030	6450	.00	.00	498	12380	8900	8800	8450

CAL YR 1982 TOTAL 81898.00 MEAN 224 MAX 1410 MIN .00 AC-FT 162400
WTR YR 1983 TOTAL 53171.00 MEAN 146 MAX 1210 MIN .00 AC-FT 105500

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,100 micromhos Feb. 13, 1969; minimum daily, 335 micromhos Feb. 12, 1971.
WATER TEMPERATURES: Maximum daily, 29.0°C July 1, 1971; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)
OCT 06...	1530	169	1300	8.3	10.5	730	550	210	51
NOV 10...	1115	222	1280	7.7	4.5	710	490	200	50
DEC 08...	1015	177	1340	7.9	.0	770	550	220	54
JAN 19...	1000	191	1390	8.0	1.0	710	500	200	50
JUN 24...	0745	161	1330	8.2	28.5	720	540	200	53
JUL 15...	0745	144	1600	--	22.5	--	--	--	--
SEP 08...	1050	117	1260	8.1	18.0	780	590	220	57

DATE	SODIUM, DISSOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT 06...	30	8	.5	3.5	187	560	5.7	.30	11
NOV 10...	27	8	.5	3.4	219	540	5.2	.40	9.4
DEC 08...	26	7	.4	3.3	226	590	5.4	.30	10
JAN 19...	38	10	.6	4.4	203	580	5.2	.40	9.4
JUN 24...	36	10	.6	4.3	182	600	5.0	.40	7.1
JUL 15...	--	--	--	--	--	--	--	--	--
SEP 08...	52	13	.8	4.8	193	680	8.1	.40	9.3

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)
OCT 06...	980	1.3	449	.390	.060	.010	.010	.03
NOV 10...	970	1.3	580	.430	.130	.020	.050	.15
DEC 08...	1000	1.4	499	.510	.050	.040	.010	.03
JAN 19...	1000	1.4	520	.460	.070	.030	.010	.03
JUN 24...	1000	1.4	441	.190	.180	.050	.030	.09
JUL 15...	--	--	--	--	--	--	--	--
SEP 08...	1100	1.6	363	.220	.060	.030	.040	.12

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1350	1290	1340	1370	---				1120	1390	1340	1380
2	1340	---	---	---	---				1120	1490	1320	1380
3	---	1260	1310	---	---				1150	1400	1340	1390
4	1360	---	---	---	1410				1160	1460	1370	1270
5	1320	1280	---	1370	---				1150	1300	1350	1320
6	1330	---	1350	---	---				1130	1260	1310	1350
7	---	---	---	1360	1400				1200	1270	1340	1350
8	1350	1280	1310	---	---				1210	1280	1300	1350
9	878	---	---	---	1340				1180	1300	1370	1290
10	960	1290	---	1270	---				1220	1300	1400	1360
11	960	---	---	---	1380				1220	1340	1440	1370
12	1110	1280	---	1260	---				1230	1330	1460	1300
13	1130	---	---	1250	---				1180	1360	1480	1320
14	1310	---	1330	1190	---				1220	1380	1470	1280
15	1130	1220	---	---	---				1220	1440	1480	1280
16	---	---	---	---	---				1220	1360	1440	1280
17	---	1340	1320	1300	---				1220	1440	1460	1300
18	---	---	---	---	---				1220	1360	1410	1290
19	1160	1340	---	1320	---				1240	1360	1410	1290
20	---	---	1240	---	---				1260	1390	1320	1280
21	---	---	1270	1390	---				1300	1370	1320	1250
22	1220	1240	1310	---	---				1320	1380	1350	1240
23	---	---	---	---	---				1330	1400	1290	1240
24	---	1340	1340	1380	---				1340	1390	1320	1220
25	1270	---	---	---	---				1340	1380	1320	1270
26	1270	---	---	1390	---				1360	1380	1330	1210
27	---	---	1380	---	---				1380	1380	1310	1210
28	1250	---	1370	1400	---				1400	1390	1280	1260
29	1270	1340	---	---	---				1360	1300	1300	1260
30	---	---	---	---	---				1390	1360	1320	---
31	---	---	---	1430	---				---	1350	1340	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	7.0	4.0	.0	---				8.0	23.0	25.0	22.0
2	10.0	---	---	---	.0				9.0	20.0	25.0	21.0
3	12.0	4.0	1.0	---	---				8.0	18.0	24.0	20.0
4	15.0	---	---	---	1.0				12.0	24.0	23.0	21.0
5	12.0	2.0	---	3.0	---				13.0	25.0	22.0	18.0
6	10.0	---	3.0	---	---				21.0	18.0	24.0	17.0
7	---	---	---	3.0	.0				15.0	25.0	25.0	18.0
8	9.0	4.0	.0	---	---				17.0	26.0	25.0	21.0
9	5.0	---	---	---	2.0				22.0	23.0	23.0	23.0
10	7.0	5.0	---	2.0	---				21.0	20.0	24.0	18.0
11	6.0	---	---	---	3.0				20.0	21.0	22.0	16.0
12	7.0	1.0	---	3.0	---				20.0	23.0	25.0	17.0
13	11.0	---	---	4.0	---				19.0	24.0	24.0	18.0
14	11.0	---	.0	1.0	---				18.0	23.0	23.0	19.0
15	11.0	2.0	---	---	5.0				22.0	20.0	23.0	20.0
16	---	---	---	---	---				17.0	21.0	23.0	18.0
17	---	4.0	4.0	.0	5.0				19.0	22.0	24.0	14.0
18	---	---	---	---	---				17.0	23.0	22.0	13.0
19	6.0	6.0	---	1.0	---				16.0	25.0	24.0	14.0
20	---	---	2.0	---	---				17.0	25.0	19.0	9.0
21	---	---	3.0	1.0	---				16.0	22.0	22.0	7.0
22	5.0	.0	2.0	---	5.0				23.0	21.0	23.0	13.0
23	---	---	---	---	4.0				25.0	20.0	22.0	12.0
24	---	.0	.0	.0	---				17.0	22.0	23.0	11.0
25	9.0	---	---	---	---				20.0	24.0	23.0	12.0
26	8.0	---	---	.0	---				20.0	25.0	22.0	13.0
27	---	---	.0	---	---				22.0	24.0	21.0	12.0
28	9.0	---	.0	1.0	---				21.0	23.0	22.0	15.0
29	8.0	3.0	---	---	---				21.0	23.0	23.0	12.0
30	---	---	---	---	---				24.0	21.0	21.0	12.0
31	---	---	---	3.0	---				---	22.0	20.0	---

06435000 BELLE FOURCHE RESERVOIR NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°44'12", long 103°40'27", in SW¼SE¼ sec.18, T.9 N., R.4 E., Butte County, Hydrologic Unit 10120202, at dam on Owl Creek, 9.8 mi northeast of Belle Fourche.

PERIOD OF RECORD.--January 1912 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929, adjustment of 1912. Prior to June 6, 1967, nonrecording gage at present site and datum.

REMARKS.--Offstream reservoir formed by earthfill dam. Storage began in May 1910; dam completed in April 1911. Conservation capacity, 185,170 acre-ft (1949 survey), between elevations 2,927.0 ft (lowest outlet) and 2,975.0 ft (crest of spillway weir). Dead storage below elevation 2,927.0 ft, 6,800 acre-ft. Figures given herein represent contents above elevation 2,927.0 ft. Water diverted from Belle Fourche River through Inlet Canal (see station 06434500) is stored in Belle Fourche Reservoir for irrigation.

COOPERATION.--Elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 197,400 acre-ft Apr. 30, 1919, May 20, 1920 (elevation, 2,974.9 ft); minimum observed, -3,000 acre-ft Sept. 30, 1936, water was lowered below dead storage level of 2,927.0 ft by opening holes in crib walls.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 175,193 acre-ft May 9 (elevation, 2,975.10 ft); minimum, 61,205 acre-ft Sept. 30 (elevation, 2,956.90 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	2963.30	96600	
Oct. 31	2968.00	126200	+29600
Nov. 30	2969.90	139500	+13300
Dec. 31	2971.40	150500	+11000
CAL YR 1982			+88008
Jan. 31	2973.60	167200	+16700
Feb. 28	2974.80	176800	+9600
Mar. 31	2975.00	178300	+1500
Apr. 30	2975.00	178300	0
May 31	2974.90	177600	-700
June 30	2972.20	156500	-21100
July 31	2965.90	112300	-44200
Aug. 31	2960.30	79500	-32800
Sept. 30	2956.90	61200	-18300
WTR YR 1983			-35400

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD

LOCATION.--Lat 44°41'27", long 103°44'14", in NW¼NE¼ sec.3, T.8 N., R.3 E., Butte County, Hydrologic Unit 10120202, on right bank 5 ft downstream from bridge on U.S. Highway 212, 2.5 mi northwest of Fruitdale and 8.8 mi downstream from point of diversion to Belle Fourche Reservoir.

DRAINAGE AREA.--4,540 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for October 1945, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 2,925 ft, from topographic map. Prior to Apr. 9, 1947, nonrecording gage and Apr. 10, 1947, to Oct. 14, 1948, water-stage recorder, at site 100 ft upstream at same datum. Oct. 15, 1948, to Dec. 30, 1958, water-stage recorder and Dec. 31, 1958, to Sept. 23, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Keyhole Reservoir since Feb. 12, 1952, usable capacity, 191,600 acre-ft, 180 mi upstream. At a point 8.8 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000) through Inlet Canal (see station 06434500), with other smaller diversions from the main stem and tributaries for irrigation. Total diversions for irrigation of about 60,000 acres above station. Several observations of water quality were made during the year.

AVERAGE DISCHARGE.--38 years, 87.8 ft³/s (63,610 acre-ft/yr); median of yearly mean discharges, 59 ft³/s (42,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s May 20, 1982 (gage height, 14.32 ft); no flow at times in 1945, 1948, 1959-62, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 978 ft³/s at 0030 hours, Oct. 10 (gage height, 6.18 ft); minimum daily, 3.7 ft³/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	8.8	7.2	5.5	5.0	365	445	490	23	6.3	16	12
2	5.8	8.7	7.2	5.0	5.0	350	381	479	20	7.1	15	13
3	5.4	8.5	7.0	4.0	5.0	352	331	448	20	9.4	16	11
4	5.3	8.1	6.8	4.2	5.0	331	326	432	20	11	13	15
5	5.5	8.2	6.7	4.4	4.8	339	319	422	20	12	17	15
6	5.5	8.5	6.9	5.0	4.5	363	317	426	20	10	19	12
7	5.6	8.1	7.5	6.0	4.5	382	307	682	20	9.4	16	13
8	7.6	7.6	6.8	6.0	4.4	353	299	869	21	8.2	13	13
9	205	7.5	6.5	6.0	4.5	334	295	828	21	6.7	11	13
10	797	8.8	6.4	5.5	4.5	315	289	834	21	8.6	7.3	12
11	94	8.4	6.4	5.5	4.5	313	283	752	21	9.6	6.4	12
12	20	8.0	6.4	6.6	4.7	351	317	725	21	10	7.4	12
13	15	7.6	6.4	6.0	5.0	624	342	738	23	7.8	7.5	12
14	13	7.8	6.4	5.6	5.2	721	337	686	23	6.8	8.7	14
15	12	8.2	6.4	5.6	5.3	545	392	632	20	5.0	9.3	15
16	12	8.2	6.7	5.4	5.0	456	542	566	21	4.1	15	16
17	12	8.1	7.0	5.0	4.6	425	637	556	19	3.8	22	17
18	11	8.4	12	5.4	4.6	393	611	538	19	4.5	27	17
19	10	8.6	8.9	5.4	262	365	433	549	19	6.8	18	15
20	10	8.4	7.8	5.4	299	365	417	553	18	12	22	14
21	11	8.1	7.1	5.2	330	360	432	552	17	13	18	14
22	11	7.3	6.7	5.0	384	342	459	553	12	12	28	10
23	11	6.6	6.7	5.0	435	329	480	539	7.4	12	21	7.5
24	10	6.6	6.7	5.0	447	324	498	502	6.7	16	16	7.5
25	9.9	6.8	6.7	5.0	413	322	517	468	6.0	15	14	7.2
26	9.8	7.0	6.3	5.0	407	331	598	449	6.3	14	15	6.4
27	10	7.2	6.2	5.0	375	329	607	428	7.1	13	15	4.4
28	11	7.2	6.0	5.0	355	340	574	396	7.8	11	15	3.8
29	9.0	7.2	5.8	5.0	---	367	535	378	7.6	16	14	3.7
30	8.8	7.4	5.5	5.2	---	475	507	364	5.4	18	12	3.9
31	8.7	---	5.6	5.2	---	531	---	213	---	19	11	---
TOTAL	1368.4	235.9	212.7	163.1	3793.1	12072	12827	17047	493.3	318.1	465.6	341.4
MEAN	44.1	7.86	6.86	5.26	135	389	428	550	16.4	10.3	15.0	11.4
MAX	797	8.8	12	6.6	447	721	637	869	23	19	28	17
MIN	5.3	6.6	5.5	4.0	4.4	313	283	213	5.4	3.8	6.4	3.7
AC-FT	2710	468	422	324	7520	23940	25440	33810	978	631	924	677

CAL YR 1982 TOTAL 38068.6 MEAN 104 MAX 8320 MIN 1.6 AC-FT 75510
WTR YR 1983 TOTAL 49337.6 MEAN 135 MAX 869 MIN 3.7 AC-FT 97860

06436170 WHITEWOOD CREEK AT DEADWOOD, SD

LOCATION.--Lat 44°22'48", long 103°43'25", in NW¼NE¼SW¼ sec. 23, T.5 N., R.3 E., Lawrence County, Hydrologic Unit 10120202, on left bank 1,000 ft downstream from box culvert where stream leaves city and at the junction of lower Main Street and truck route of highways U.S. 85 and A.H. 14 in Deadwood.

DRAINAGE AREA.--40.6 mi^2, approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,500 ft, from topographic map.

REMARKS.--Records good. Flow regulated by Homestake Mining Co. 3.5 mi upstream. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,660 ft^3/s May 15, 1982 (gage height, 5.54 ft); minimum daily, 3.5 ft^3/s Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 715 ft^3/s at 0030 hours, May 7 (gage height, 4.90 ft); minimum daily, 5.9 ft^3/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	62	24	17	14	20	39	120	59	20	21	20
2	7.5	59	22	17	15	25	38	104	55	18	21	22
3	13	56	23	17	15	28	35	102	53	20	19	19
4	12	50	23	18	15	31	36	107	51	20	49	19
5	12	48	23	18	15	37	35	124	49	18	52	19
6	11	48	20	19	15	32	34	238	46	17	31	18
7	20	44	17	18	14	30	35	479	46	21	25	18
8	9.2	41	20	18	14	29	36	422	44	20	22	19
9	7.1	41	22	17	14	28	36	390	41	20	21	19
10	5.9	38	20	17	13	30	36	315	39	20	21	18
11	8.1	34	20	19	13	38	42	256	39	19	20	17
12	11	33	22	18	15	50	42	198	39	18	21	18
13	16	32	22	18	15	57	42	163	37	20	22	18
14	31	29	22	17	16	60	42	141	37	22	21	17
15	60	28	20	18	16	61	40	124	35	22	18	16
16	66	29	21	18	15	56	41	111	33	22	25	15
17	87	31	20	17	16	52	47	102	33	28	25	16
18	85	31	20	18	16	50	61	98	32	23	28	17
19	70	32	21	17	18	47	88	113	32	23	30	19
20	58	29	20	16	16	44	119	111	30	23	24	19
21	52	25	19	16	16	42	162	98	26	21	23	19
22	50	25	20	17	17	39	187	97	24	21	30	19
23	51	22	20	16	17	37	202	94	24	22	21	18
24	55	24	19	16	18	35	249	92	23	22	21	18
25	66	26	19	16	18	34	303	90	25	21	20	18
26	83	25	17	15	22	32	288	88	22	21	21	18
27	96	25	17	16	21	33	235	84	20	22	21	18
28	93	25	17	17	20	32	183	79	20	23	20	18
29	80	24	18	17	---	33	158	73	20	31	20	17
30	71	24	19	16	---	36	136	68	22	25	21	19
31	67	---	19	15	---	39	---	64	---	22	20	---
TOTAL	1364.8	1040	626	529	449	1197	3027	4745	1056	665	754	545
MEAN	44.0	34.7	20.2	17.1	16.0	38.6	101	153	35.2	21.5	24.3	18.2
MAX	96	62	24	19	22	61	303	479	59	31	52	22
MIN	5.9	22	17	15	13	20	34	64	20	17	18	15
AC-FT	2710	2060	1240	1050	891	2370	6000	9410	2090	1320	1500	1080

CAL YR 1982 TOTAL 16934.8 MEAN 46.4 MAX 1960 MIN 3.5 AC-FT 33590
WTR YR 1983 TOTAL 15997.8 MEAN 43.8 MAX 479 MIN 5.9 AC-FT 31730

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD

LOCATION.--Lat 44°26'32", long 103°37'44", in SE¼SE¼NE¼NE¼ sec.33, T.6 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, left bank 90 ft downstream from Crook Mountain Road, 1.1 mi south of Whitewood.

DRAINAGE AREA.--56.3 mi^2.

PERIOD OF RECORD.--October 1982 to September 30.

GAGE.--Water-stage recorder. Altitude of gage is 3,680 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Flow affected by transbasin diversions for industrial and municipal water supplies. Several observations of water quality were made during the year.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 684 ft^3/s at 0215 hours, May 7 (gage height, 4.60 ft); minimum daily, 11 ft^3/s Jan. 22-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	60	29	17	12	27	46	137	60	26	22	19
2	---	56	28	17	13	31	45	120	57	23	22	20
3	---	52	29	16	12	34	42	113	55	24	21	20
4	---	48	28	15	12	37	43	113	52	24	44	20
5	---	46	27	14	12	47	44	121	49	23	48	21
6	---	47	25	13	12	42	43	219	47	22	37	19
7	---	45	23	13	14	40	41	470	46	23	28	20
8	---	42	22	13	14	39	43	410	43	22	25	20
9	---	42	24	14	15	39	45	357	41	22	23	21
10	---	41	23	12	15	41	45	288	40	22	23	21
11	---	40	21	12	15	49	54	230	38	20	21	20
12	---	37	20	12	12	63	54	188	38	21	21	20
13	---	36	17	12	13	69	52	155	37	21	22	21
14	---	36	17	12	16	71	50	134	37	22	21	20
15	---	35	17	13	17	71	48	120	34	22	20	19
16	---	34	18	14	16	66	49	109	34	23	24	17
17	---	36	18	12	19	61	57	103	35	30	23	17
18	---	38	19	12	20	58	75	97	33	25	23	18
19	---	54	19	12	22	56	108	108	33	25	33	20
20	---	48	19	12	19	50	147	104	31	24	24	22
21	---	49	18	12	20	46	179	104	30	22	24	19
22	---	43	19	11	24	43	201	104	28	23	32	19
23	---	43	19	11	29	45	215	101	27	22	24	20
24	---	40	17	11	27	45	256	97	26	23	23	19
25	---	38	16	11	23	44	279	96	26	21	22	19
26	83	36	16	11	27	44	279	91	27	21	21	18
27	97	34	17	11	27	41	222	85	24	21	21	19
28	92	32	16	11	27	39	184	80	25	23	20	20
29	78	31	16	11	---	41	157	75	24	28	20	19
30	67	30	16	11	---	42	147	68	25	27	20	19
31	62	---	16	11	---	47	---	66	---	22	20	---
TOTAL	---	1249	629	389	504	1468	3250	4663	1102	717	772	586
MEAN	---	41.6	20.3	12.5	18.0	47.4	108	150	36.7	23.1	24.9	19.5
MAX	---	60	29	17	29	71	279	470	60	30	48	22
MIN	---	30	16	11	12	27	41	66	24	20	20	17
AC-FT	---	2480	1250	772	1000	2910	6450	9250	2190	1420	1530	1160

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD

LOCATION.--Lat 44°32'30", long 103°34'16", in SE¼NW¼SE¼NE¼ sec.25, T.7 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 50 ft downstream from county highway bridge, 6.9 mi northeast of Whitewood.

DRAINAGE AREA.--77.4 mi^2, approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,175 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Small diversions above station for irrigation of 256 acres. Several observations of water quality were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,050 ft^3/s May 20, 1982 (gage height, 4.52 ft); minimum daily, 4.0 ft^3/s Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 9	1845	203	2.02	Apr. 17	1615	168	1.84
Oct. 17	0130	145	1.82	Apr. 26	0100	372	2.44
Oct. 28	0915	154	1.85	May 7	0030	*736	*3.08
Mar. 13	1545	80	1.56	Aug. 5	2145	109	1.53

Minimum daily discharge, 15 ft^3/s Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	60	31	27	20	22	43	187	71	29	24	23
2	19	59	32	31	23	23	41	169	67	25	23	22
3	17	49	28	30	22	29	41	146	63	24	21	22
4	15	58	30	28	17	34	40	141	62	27	34	22
5	16	58	31	26	17	46	44	157	60	22	51	24
6	20	60	29	24	22	43	42	237	56	20	50	22
7	20	57	22	24	21	38	41	420	54	19	34	21
8	26	51	23	25	18	37	45	236	54	20	27	21
9	97	60	24	30	17	37	47	205	50	20	26	22
10	74	62	25	26	17	35	47	184	46	21	24	22
11	40	55	25	29	17	41	64	154	42	18	22	21
12	36	52	22	28	18	46	68	137	42	18	21	21
13	42	45	20	27	20	41	67	126	42	17	22	21
14	49	42	18	23	20	41	76	111	42	17	22	21
15	72	39	22	22	19	43	73	103	39	19	20	19
16	86	41	26	22	19	41	87	98	38	22	24	17
17	112	41	31	22	21	38	115	94	41	30	24	17
18	110	42	32	22	21	36	93	93	40	25	26	18
19	82	40	31	22	22	34	123	103	38	23	37	20
20	68	39	35	21	21	33	135	109	35	22	29	22
21	60	37	34	20	21	33	160	107	33	20	28	20
22	56	33	35	21	21	32	227	102	28	21	38	21
23	52	33	32	21	21	29	235	101	27	22	29	20
24	53	26	29	21	21	27	265	98	26	24	26	19
25	59	33	21	20	21	28	298	95	26	21	24	19
26	74	29	22	19	22	28	273	92	27	20	22	18
27	96	30	25	20	24	30	237	88	25	20	22	17
28	112	33	24	23	23	30	202	86	25	20	22	17
29	81	38	22	24	---	30	181	81	23	27	21	19
30	67	35	24	22	---	39	186	76	23	37	22	18
31	61	---	24	21	---	43	---	71	---	27	22	---
TOTAL	1792	1337	829	741	566	1087	3596	4207	1245	697	837	606
MEAN	57.8	44.6	26.7	23.9	20.2	35.1	120	136	41.5	22.5	27.0	20.2
MAX	112	62	35	31	24	46	298	420	71	37	51	24
MIN	15	26	18	19	17	22	40	71	23	17	20	17
AC-FT	3550	2650	1640	1470	1120	2160	7130	8340	2470	1380	1660	1200

CAL YR 1982 TOTAL 16851.2 MEAN 46.2 MAX 1840 MIN 4.0 AC-FT 33420
WTR YR 1983 TOTAL 17540.0 MEAN 48.1 MAX 420 MIN 15 AC-FT 34790

06436198 WHITEWOOD CREEK ABOVE VALE, SD

LOCATION.--Lat 44°37'04", long 103°28'52", in SE¼NW¼NE¼NW¼ sec.35, T.8 N., R.5 E., Butte County, Hydrologic Unit 10120202, on left bank at point where South Canal crosses creek, 3.2 mi above mouth, and 3.7 mi west of Vale.

DRAINAGE AREA.--102 mi^2.

PERIOD OF RECORD.--November 1982 to September 1983.

GAGE.--Water-stage recorder. Altitude of gage is 2,840 ft, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Diversions above station for irrigation of about 800 acres. Several observations of water quality were made during the year.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 502 ft^3/s at 0515 hours, May 7 (gage height, 2.10 ft); minimum daily, 11 ft^3/s Feb. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	25	29	21	27	62	145	71	30	23	17
2		---	24	31	22	28	55	135	67	27	21	15
3		---	27	28	24	31	54	122	63	27	19	16
4		---	25	26	28	33	51	126	59	25	21	15
5		58	24	27	13	40	55	130	58	24	43	16
6		57	25	29	13	41	53	151	54	23	47	15
7		54	22	31	17	45	52	400	51	22	28	15
8		51	18	32	21	36	53	370	49	22	22	14
9		50	20	34	21	35	56	335	47	23	20	17
10		48	22	32	18	36	56	287	45	23	19	17
11		47	23	30	15	44	61	236	42	21	18	16
12		47	23	27	11	74	76	217	41	21	17	16
13		50	26	25	11	89	76	194	41	20	17	16
14		44	34	23	16	75	66	157	39	19	17	18
15		42	32	22	25	70	77	137	39	19	17	17
16		41	32	21	24	66	172	122	38	19	20	14
17		38	40	21	24	65	217	115	42	24	19	13
18		37	44	25	23	60	122	114	38	23	20	13
19		36	42	30	23	56	122	124	37	23	26	16
20		35	40	29	23	51	139	123	33	22	22	22
21		31	35	29	23	49	165	122	30	19	23	21
22		34	30	29	25	48	194	118	28	19	35	21
23		27	26	29	25	48	198	115	29	20	25	22
24		29	26	29	25	50	226	110	27	22	23	20
25		31	24	27	26	52	268	104	27	21	20	19
26		34	20	26	26	54	266	102	28	20	18	17
27		36	22	28	27	48	233	94	25	19	18	16
28		38	23	30	27	47	197	90	26	19	17	17
29		34	24	27	---	57	175	84	26	22	16	22
30		25	24	22	---	78	157	80	27	29	18	26
31		---	25	23	---	82	---	74	---	23	18	---
TOTAL		---	847	851	597	1615	3756	4833	1227	690	687	519
MEAN		---	27.3	27.5	21.3	52.1	125	156	40.9	22.3	22.2	17.3
MAX		---	44	34	28	89	268	400	71	30	47	26
MIN		---	18	21	11	27	51	74	25	19	16	13
AC-FT		---	1680	1690	1180	3200	7450	9590	2430	1370	1360	1030

06436760 HORSE CREEK ABOVE VALE, SD

LOCATION.--Lat 44°39'08", long 103°21'59", in SE¼NE¼SE¼ sec.15, T.8 N., R.6 E., Butte County, Hydrologic Unit 10120202, on left bank 2.6 mi upstream from Dry Creek, 5.5 mi upstream from mouth, 3.0 mi northeast of Vale, and 4.5 mi southeast of Newell.

DRAINAGE AREA.--462 mi², approximately.

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,710 ft, from topographic map. April 1962 to September 1980, water-stage recorder, at site 2.7 mi downstream, at different datum.

REMARKS.--Records good except those for winter period, which are poor. Natural flow of stream affected by diversions for irrigation above station and by return flow from Belle Fourche Irrigation Project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,700 ft³/s May 21, 1982 (gage height, 24.80 ft); minimum daily, 0.60 ft³/s Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,480 ft³/s at 2215 hours, Oct. 10 (gage height, 9.90 ft), no other peak above base of 400 ft³/s; minimum daily, 2.6 ft³/s Apr. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	45	9.0	8.2	14	26	22	3.4	3.9	39	77	30
2	72	25	8.8	7.0	13	26	23	5.1	2.9	53	71	30
3	55	11	9.0	7.0	13	23	27	5.5	5.1	56	65	32
4	35	10	9.4	8.0	13	21	27	4.4	9.0	63	55	39
5	21	9.7	9.8	9.0	11	21	26	4.5	8.6	64	53	48
6	16	9.3	9.2	10	17	22	23	4.4	4.5	63	55	51
7	14	8.9	8.2	10	30	22	20	4.3	5.4	60	53	50
8	13	8.9	6.1	9.0	28	18	17	5.8	9.0	60	49	47
9	115	8.6	6.8	9.0	24	20	15	4.4	23	62	44	44
10	1140	8.6	7.4	8.5	21	20	13	3.9	30	57	47	39
11	1470	8.1	7.0	8.5	19	23	12	3.6	36	55	47	38
12	948	7.4	7.8	10	19	27	14	4.6	52	55	44	39
13	521	6.8	8.8	15	23	39	13	10	72	58	51	40
14	162	7.2	9.2	30	24	66	11	12	87	59	56	39
15	67	6.6	7.4	60	23	150	9.3	11	83	61	62	46
16	44	7.4	7.6	100	23	128	9.1	11	81	63	59	46
17	34	8.3	8.4	140	26	87	14	8.7	74	67	60	44
18	30	8.8	10	120	84	61	26	13	72	77	78	41
19	27	9.2	11	90	85	46	19	17	66	81	83	41
20	25	9.2	10	60	82	39	14	17	50	80	72	41
21	23	8.6	9.6	52	69	34	12	13	41	85	72	36
22	22	7.8	9.4	32	61	28	10	12	34	80	121	36
23	21	7.2	9.8	29	55	26	8.9	11	30	77	143	36
24	20	6.4	9.6	29	52	27	6.8	8.3	28	86	101	32
25	22	6.2	8.4	27	36	26	4.7	7.0	32	83	93	34
26	25	6.6	7.4	18	35	24	4.2	5.7	39	76	59	37
27	30	6.2	7.8	16	34	24	3.2	4.5	39	66	48	35
28	35	6.8	7.2	15	25	22	2.6	4.8	38	64	44	35
29	45	7.4	7.6	15	---	24	2.9	4.8	35	78	48	39
30	60	8.4	7.0	15	---	26	2.9	3.1	32	82	38	43
31	70	---	8.8	14	---	23	---	4.2	---	81	31	---
TOTAL	5245	295.6	263.5	981.2	959	1169	412.6	232.0	1122.4	2091	1979	1188
MEAN	169	9.85	8.50	31.7	34.3	37.7	13.8	7.48	37.4	67.5	63.8	39.6
MAX	1470	45	11	140	85	150	27	17	87	86	143	51
MIN	13	6.2	6.1	7.0	11	18	2.6	3.1	2.9	39	31	30
AC-FT	10400	586	523	1950	1900	2320	818	460	2230	4150	3930	2360

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CAL YR 1982   TOTAL   46864.96   MEAN   128    MAX   14000   MIN  .60   AC-FT  92960
WTR YR 1983   TOTAL   15938.30   MEAN    43.7  MAX    1470   MIN 2.6    AC-FT  31610
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06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD

LOCATION.--Lat 44°30'47", long 103°08'11", in SE¼NW¼ sec.3, T.6 N., R.8 E., Meade County, Hydrologic Unit 10120202, on right bank near upstream end of bridge on State Highway 34, 0.5 mi upstream from Bear Butte Creek and 20 mi northeast of Sturgis.

DRAINAGE AREA.--5,870 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,526.13 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 31, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft, 246 mi upstream since February 1952. At a point 75 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal (see station 06434500), with other small diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres above station. Several observations of water quality were made during the year.

AVERAGE DISCHARGE.--38 years, 276 ft^3/s (200,000 acre-ft/yr); median of yearly mean discharges, 232 ft^3/s (168,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,400 ft^3/s May 21, 1982 (gage height, 19.10 ft); no flow for many days in 1945, 1950, and Aug. 9, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,060 ft^3/s at 1645 hours, Oct. 10 (gage height, 9.72 ft); minimum daily, 40 ft^3/s Dec. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	257	146	71	52	160	380	682	867	416	253	448	241
2	329	139	72	52	150	353	555	792	206	277	498	240
3	282	129	76	56	150	425	483	692	205	293	450	256
4	182	117	80	56	140	433	438	648	204	324	396	268
5	111	112	80	60	140	433	417	621	211	361	371	300
6	73	111	64	80	140	427	408	610	214	355	366	328
7	56	111	40	100	150	434	394	767	231	303	367	337
8	59	108	50	90	160	430	376	1310	202	251	349	337
9	370	102	56	80	170	400	360	1320	178	271	322	329
10	4840	101	66	80	180	440	353	1250	205	274	314	316
11	3290	85	66	100	250	361	344	1200	235	269	314	284
12	1560	77	70	150	320	448	374	1000	279	268	286	264
13	1080	74	70	220	300	701	467	1140	339	262	277	282
14	596	74	70	220	270	938	460	1150	376	254	299	296
15	321	76	74	200	300	961	484	993	377	256	334	330
16	270	80	78	180	350	840	763	893	365	266	359	368
17	270	82	80	160	380	745	1480	778	375	314	332	339
18	253	86	72	140	420	644	1380	754	393	345	367	309
19	253	86	72	160	410	582	971	717	384	352	456	284
20	247	80	72	170	400	516	784	760	343	352	462	286
21	208	70	78	170	440	467	729	748	330	355	453	298
22	166	64	80	170	446	447	734	748	313	381	565	290
23	134	60	76	160	466	416	746	729	293	406	792	256
24	113	64	70	150	474	395	771	699	283	465	622	236
25	110	70	60	140	461	384	823	644	238	514	519	216
26	108	75	54	140	423	406	854	617	263	522	438	206
27	146	75	52	200	417	422	920	591	298	423	377	199
28	188	75	50	190	378	418	919	591	326	384	351	180
29	195	75	50	180	---	435	378	558	317	373	341	204
30	178	75	50	170	---	541	867	528	267	411	322	235
31	160	---	52	160	---	699	---	501	---	459	276	---
TOTAL	16405	2679	2051	4236	8445	15921	20214	25216	8666	10593	12423	8314
MEAN	529	89.3	66.2	137	302	514	674	813	289	342	401	277
MAX	4840	146	80	220	474	961	1480	1320	416	522	792	368
MIN	56	60	40	52	140	353	344	501	178	251	276	180
AC-FT	32540	5310	4070	8400	16750	31580	40090	50020	17190	21010	24640	16490

CAL YR 1982 TOTAL 195678.6 MEAN 536 MAX 29700 MIN 3.6 AC-FT 388100
WTR YR 1983 TOTAL 135163.0 MEAN 370 MAX 4640 MIN 40 AC-FT 268100

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954-58, 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1954 to September 1958, October 1968 to September 1971, October 1973 to current year.
WATER TEMPERATURES: August 1954 to September 1958, October 1968 to September 1971, October 1974 to current year.

REMARKS.--Samples collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,000 micromhos May 16, 1981; minimum daily, 650 micromhos Feb. 15, 1971.
WATER TEMPERATURES: Maximum daily, 30.5°C July 5, 1981; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 3,100 micromhos Dec. 13; minimum observed daily, 805 micromhos May 22.
WATER TEMPERATURES: Maximum observed daily, 25.5°C July 9, 10; minimum observed daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT									
18...	1030	245	2000	8.2	10.0	880	690	190	99
NOV									
12...	1030	76	2540	7.9	.0	1200	950	250	140
DEC									
10...	1315	66	3150	--	.0	600	460	130	68
JAN									
05...	1400	58	2840	8.2	.5	--	--	--	--
20...	1615	169	1840	8.1	.0	650	510	130	80
MAR									
17...	1115	703	1600	8.3	4.0	630	490	150	62
APR									
18...	1015	1560	--	--	--	590	490	140	60
18...	1145	1500	1530	7.3	10.5	--	--	--	--
MAY									
08...	1045	1330	--	--	--	460	320	120	39
08...	1645	1490	--	--	--	530	380	140	45
09...	1045	1320	--	--	--	440	290	120	36
24...	0945	663	1100	8.4	17.0	640	450	170	54
JUN									
09...	1400	169	--	8.3	25.5	1000	850	240	99
JUL									
21...	0915	352	1760	8.1	24.0	860	700	210	83
AUG									
23...	1430	616	--	--	--	780	620	190	76
30...	1410	320	--	--	--	860	730	210	82
30...	1515	320	1710	8.7	28.0	--	--	--	--
SEP									
26...	1435	207	1820	8.6	18.5	880	720	220	84

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)
OCT								
18...	1500	2.1	1010	2.00	.110	.030	<.010	--
NOV								
12...	2000	2.7	403	2.80	.020	<.010	<.010	--
DEC								
10...	1400	1.9	253	1.50	.040	.010	<.010	--
JAN								
05...	--	--	--	--	--	--	--	--
20...	1300	1.8	594	2.90	.110	.030	<.010	--
MAR								
17...	1100	1.5	2140	3.00	.530	.060	.110	.34
APR								
18...	1200	1.6	4950	1.10	.200	.030	.020	.06
18...	--	--	--	--	--	--	--	--
MAY								
08...	--	.94	2480	--	--	--	--	--
08...	--	1.1	3200	--	--	--	--	--
09...	--	.86	2250	--	--	--	--	--
24...	--	1.3	1700	--	--	--	--	--
JUN								
09...	--	2.1	694	--	--	--	--	--
JUL								
21...	--	2.0	1390	--	--	--	--	--
AUG								
23...	--	1.8	2970	--	--	--	--	--
30...	1400	2.0	1300	.560	.060	.010	.020	.06
30...	--	--	--	--	--	--	--	--
SEP								
26...	--	2.1	877	--	--	--	--	--

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT										
18...	--	--	--	--	--	--	--	--	--	--
NOV										
12...	--	--	--	--	--	--	--	--	--	--
DEC										
10...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
MAR										
17...	--	--	--	--	--	--	--	--	--	--
APR										
18...	140	230	.4	3	<40	12	<10	1500	<1	<10
18...	--	--	--	--	--	--	--	--	--	--
MAY										
08...	--	110	2.1	--	<40	5	<10	--	--	<10
08...	--	190	1.6	--	<40	5	<10	--	--	<10
09...	--	35	1.0	--	<40	5	<10	--	--	<10
24...	--	100	<.2	--	<40	3	<10	--	--	<10
JUN										
09...	--	79	<.2	--	<40	15	<10	--	--	<10
JUL										
21...	--	<10	<.2	--	<40	<20	<10	--	--	<10
AUG										
23...	--	<10	.3	--	<40	<20	<10	--	--	<10
30...	--	<10	<.2	--	<40	<20	<10	--	--	<10
30...	--	--	--	--	--	--	--	--	--	--
SEP										
26...	--	32	<.2	--	<40	<2	<10	--	--	<10

< Less than.

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT									
18...	140	25	2	9.4	198	940	23	.50	8.1
NOV									
12...	170	23	2	9.7	254	1200	27	.60	8.1
DEC									
10...	94	23	2	69	150	950	12	.40	4.1
JAN									
05...	--	--	--	--	--	--	--	--	--
20...	160	34	3	9.8	146	800	26	.40	7.6
MAR									
17...	120	29	2	6.8	143	680	15	.30	9.4
APR									
18...	120	30	2	8.4	114	830	24	.50	8.5
18...	--	--	--	--	--	--	--	--	--
MAY									
08...	35	14	.7	4.4	147	330	3.0	--	--
08...	46	16	.9	4.8	147	420	5.0	--	--
09...	34	14	.7	4.4	147	330	3.0	--	--
24...	60	16	1	4.9	153	370	9.0	--	--
JUN									
09...	120	20	2	6.4	154	920	16	--	--
JUL									
21...	130	24	2	10	166	550	18	--	--
AUG									
23...	110	23	2	11	167	500	15	--	--
30...	95	19	1	7.9	133	860	15	.50	4.9
30...	--	--	--	--	--	--	--	--	--
SEP									
26...	120	22	2	7.6	162	950	16	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
OCT										
18...	1030	245	--	310	--	--	--	--	--	--
NOV										
12...	1030	76	--	340	--	--	--	--	--	--
DEC										
10...	1315	66	--	210	--	--	--	--	--	--
JAN										
05...	1400	58	--	--	--	--	--	--	--	--
20...	1615	169	--	220	--	--	--	--	--	--
MAR										
17...	1115	703	--	170	--	--	--	--	--	--
APR										
18...	1015	1560	<10	190	<1	<10	1	<50	<50	<5
18...	1145	1500	--	--	--	--	--	--	--	--
MAY										
08...	1045	1330	30	--	<1	<10	--	<50	<50	7
08...	1645	1490	27	--	<1	<10	--	<50	<50	<5
09...	1045	1320	24	--	<1	<10	--	<50	<50	<5
24...	0945	663	14	--	<1	<10	--	<50	<50	<5
JUN										
09...	1400	169	10	--	9	<10	--	<50	<50	<5
JUL										
21...	0915	352	13	--	<1	<10	--	<50	<50	<5
AUG										
23...	1430	816	12	--	<1	<10	--	<50	<50	6
30...	1410	320	<10	260	<1	<10	--	<50	<50	<5
30...	1515	320	--	--	--	--	--	--	--	--
SEP										
26...	1435	207	<10	--	<1	<10	--	<50	<50	<5

< Less than.

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1880	1970	2510	2910	2530	1360	1680	1050	1250	1670	1580	1670
2	1830	2080	2430	3000	---	1420	1640	1120	1370	1740	1600	1690
3	1890	2200	2500	3000	2570	1410	1650	1260	1520	1810	1570	1710
4	1860	2210	2550	2870	2570	1410	1700	1260	1850	1740	1580	1680
5	1960	2240	2630	2800	2580	1400	1690	1270	1760	1740	1630	1690
6	2070	2340	2690	2790	2640	1390	1700	1250	2130	1670	1650	1690
7	2220	2170	2640	2730	2690	1610	1660	1200	1850	1630	1600	1660
8	2300	2340	2650	2630	2680	1710	1670	980	2070	1630	1580	1630
9	2090	2220	2720	2600	2670	1580	1620	915	1840	1680	1660	1630
10	1220	2260	2850	2700	2400	1480	1620	830	1950	1670	1680	1670
11	880	2330	2900	2550	2480	1510	1650	840	2280	1690	1690	1680
12	953	2380	2910	2230	2380	1730	1590	805	2360	1680	1680	1730
13	1200	2740	3100	1980	2280	2250	1570	929	2090	1710	1710	1720
14	1260	2940	3070	2520	2200	1920	1760	1720	2080	1760	1690	1640
15	1440	2580	2950	2200	2250	1720	1680	1440	1950	1780	1710	1630
16	1700	2500	2950	2300	2430	1600	2120	1390	1880	1800	1670	1620
17	1880	2450	2900	1950	2430	1550	2100	1340	1820	1800	1690	1600
18	1900	2450	2700	2430	2440	1420	1510	1390	1780	1720	1730	1580
19	1870	2350	2750	1690	2500	1440	1360	1380	1700	1720	1680	1610
20	1860	2380	2520	1720	2350	1460	1370	1320	1750	1690	1670	1630
21	1860	2460	2710	1850	2100	1490	1480	1360	1700	1700	1630	1600
22	1950	2500	2610	1820	1570	1490	1420	1270	1720	1680	1610	1590
23	1990	2700	2480	1930	1500	1510	1340	1220	1730	1680	1650	1620
24	2050	2720	2420	2020	1360	1490	1280	1230	1700	1630	1550	1650
25	2130	2720	2380	2130	1350	1500	1180	1230	1680	1620	1540	1700
26	2150	2880	2560	2200	1350	1510	1080	1230	1780	1630	1610	1750
27	2130	2870	2560	2250	1350	1530	1030	1190	1740	1580	1610	1750
28	2040	2870	2700	2300	1350	1550	990	1190	1700	1630	1650	1780
29	1880	2640	2830	2280	---	1720	970	1240	1650	1630	1700	1810
30	1820	2640	2900	2280	---	1860	1010	1220	1750	1650	1680	1730
31	1870	---	2960	2420	---	1830	---	1250	---	1650	1670	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	5.0	.0	.0	.0	6.0	4.0	7.0	20.0	20.0	23.0	22.0
2	8.0	4.0	.0	.0	.0	8.0	4.0	9.0	15.0	21.0	25.0	22.5
3	9.5	2.0	.0	.0	.0	4.0	3.0	13.0	16.5	19.5	25.0	21.5
4	10.5	.5	.0	.0	.0	5.0	1.0	10.0	16.5	16.5	25.0	21.5
5	11.0	.0	.0	.0	.0	4.0	1.0	12.0	17.0	17.5	24.0	20.0
6	7.0	.0	.0	.0	.0	1.0	1.0	13.5	16.0	21.5	24.0	17.0
7	7.0	2.0	.0	.0	.0	.0	4.0	12.0	16.5	23.0	24.5	16.5
8	9.5	2.5	.0	.0	.0	.0	3.0	15.0	18.0	25.0	24.5	19.0
9	6.5	2.0	.0	.0	.0	1.0	3.5	13.0	19.0	25.5	23.0	19.0
10	6.0	2.0	.0	.0	.0	.5	5.0	13.0	20.0	25.5	25.0	18.0
11	6.0	2.0	.0	.0	.0	1.0	7.0	10.0	21.5	20.0	23.0	16.0
12	5.5	.0	.0	.0	.0	5.0	4.0	6.0	20.0	20.5	23.0	14.5
13	6.0	.0	.0	.0	.0	4.5	1.0	6.5	17.0	22.0	21.5	15.0
14	9.0	.0	.0	.0	.0	4.0	.0	6.0	16.0	23.5	22.0	15.0
15	9.0	.0	.0	.0	.0	4.0	2.0	14.0	16.0	20.5	23.0	15.5
16	9.5	.0	.0	.0	.0	4.5	3.0	9.5	17.0	19.0	24.0	13.5
17	10.0	.0	.0	.0	.0	3.0	7.5	10.0	17.0	21.5	24.0	15.0
18	10.0	.0	.0	.0	.0	2.0	7.0	10.5	16.5	22.5	24.0	13.5
19	6.0	.5	.0	.0	.0	.0	8.5	13.0	18.5	24.0	24.0	10.5
20	3.0	.0	.0	.0	.0	.0	10.0	12.0	20.0	26.0	21.0	6.0
21	3.0	.0	.0	.0	.0	.0	11.0	13.0	21.5	24.5	22.0	5.0
22	4.0	.0	.0	.0	2.0	.0	12.0	13.0	19.5	23.0	22.0	7.0
23	5.0	.0	.0	.0	5.0	.0	10.0	14.0	20.0	21.0	22.0	7.0
24	9.0	.0	.0	.0	2.5	1.0	10.0	16.0	22.5	20.0	22.5	10.5
25	7.0	.0	.0	.0	.0	2.5	11.0	16.0	21.5	22.0	23.0	11.5
26	9.0	.0	.0	.0	4.0	1.0	10.5	17.0	22.0	24.0	25.0	12.0
27	10.0	.0	.0	.0	1.5	2.0	10.0	18.5	20.5	23.0	22.5	14.5
28	6.0	.0	.0	.0	2.0	2.0	10.0	19.0	19.5	23.0	23.0	14.0
29	4.0	.0	.0	.0	---	2.0	9.0	17.0	17.5	23.0	21.5	11.5
30	3.5	.0	.0	.0	---	3.5	8.0	16.0	19.5	22.0	22.0	11.0
31	5.0	---	.0	.0	---	8.0	---	15.0	---	23.0	23.0	---

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°22'11", long 102°33'56", in NE¼NE¼ sec.29, T.5 N., R.13 E., Meade County, Hydrologic Unit 10120202, on right bank 10 ft downstream from highway bridge, 4.3 mi northwest of Elm Springs and 4.7 mi downstream from Hay Creek.

DRAINAGE AREA.--7,210 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 926: 1929, 1931(M), 1935, 1937.

GAGE.--Water-stage recorder. Datum of gage is 2,171.60 ft National Geodetic Vertical Datum of 1929. Prior to July 27, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period and those for period of no gage-height record, Oct. 3 to Nov. 3, which are poor. Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft, 304 mi upstream since February 12, 1952. At a point 133 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal near Belle Fourche (see station 06434500), with other smaller diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres above station.

AVERAGE DISCHARGE.--52 years (water years 1929-31, 1935-83), 362 ft^3/s (262,300 acre-ft/yr); median of yearly mean discharges, 360 ft^3/s (261,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,100 ft^3/s June 8, 1964 (gage height, 15.90 ft), from rating curve extended above 23,000 ft^3/s; maximum gage height, 18.22 ft May 21, 1982; no flow for many days in 1936-37, 1939-40, 1961-62, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1927 reached a stage of 21.8 ft. Flood in spring of 1933 reached a stage of about 20 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 6,800 ft^3/s Oct. 10 (gage height, unknown); minimum daily, 40 ft^3/s Dec. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	281	210	70	64	94	490	769	884	541	310	436	301
2	281	184	70	62	90	470	710	949	445	268	421	251
3	400	172	70	71	90	457	596	841	264	283	471	246
4	310	153	74	80	94	451	525	778	239	295	413	254
5	212	148	70	90	86	586	478	730	232	337	372	267
6	132	150	66	100	82	662	458	710	243	378	336	299
7	100	146	58	110	105	617	441	736	244	370	336	337
8	120	142	40	100	132	588	427	1020	255	310	356	343
9	700	133	43	90	168	567	420	1440	227	254	340	329
10	6800	128	45	100	204	546	406	1300	205	258	305	327
11	4500	127	42	110	240	479	396	1270	212	263	295	303
12	2400	110	48	130	264	535	404	1340	242	250	284	278
13	1500	80	64	140	288	686	451	1590	300	237	270	277
14	840	70	73	170	324	878	517	1620	369	231	267	285
15	450	80	66	170	369	1010	541	1300	402	217	274	301
16	300	86	72	150	374	935	707	1130	391	223	318	337
17	300	100	86	140	385	796	1150	980	416	246	347	375
18	292	92	84	130	426	701	1600	905	387	287	337	341
19	280	90	78	120	515	619	1300	838	440	327	366	304
20	255	80	80	110	440	556	916	810	399	340	450	284
21	210	78	84	105	440	508	786	817	360	325	459	305
22	200	74	80	105	610	489	767	806	339	332	466	314
23	190	65	76	110	535	469	806	792	321	368	610	284
24	180	56	74	110	498	452	823	771	297	400	766	249
25	180	60	64	110	566	635	848	729	279	449	589	229
26	192	64	58	114	535	447	892	696	247	498	514	208
27	200	68	58	120	525	465	936	665	261	492	435	200
28	210	72	54	128	512	485	970	631	309	397	374	189
29	222	74	56	120	---	492	921	634	348	392	351	169
30	230	74	62	110	---	500	865	592	334	365	342	204
31	220	---	68	100	---	633	---	573	---	403	332	---
TOTAL	22687	3166	2033	3469	8991	18004	21826	28877	9548	10105	12232	8390
MEAN	732	106	65.6	112	321	581	728	932	318	326	395	280
MAX	6800	210	86	170	610	1010	1600	1620	541	498	766	375
MIN	100	56	40	62	82	435	396	573	205	217	267	169
AC-FT	45000	6280	4030	6880	17830	35710	43290	57280	18940	20040	24260	16640

CAL YR 1982 TOTAL 225375.6 MEAN 617 MAX 35200 MIN 2.0 AC-FT 447000
WTR YR 1983 TOTAL 149328.0 MEAN 409 MAX 6800 MIN 40 AC-FT 296200

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1974 to September 1981.
WATER TEMPERATURES: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,000 micromhos Jan. 31, Feb. 7-11; minimum daily, 800 micromhos June 19, 1976.
WATER TEMPERATURES: Maximum daily, 33.5°C June 25, 1977; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
NOV											
03...	1500	171	2070	8.4	3.5	16	14.0	K3	--	980	780
DEC											
14...	1510	74	3400	--	.0	--	--	--	--	--	--
JAN											
26...	1600	114	--	--	--	11	--	<2	130	820	650
APR											
14...	1110	269	1820	--	22.5	--	--	--	--	--	--
14...	1500	532	1760	--	5.5	--	--	--	--	--	--
AUG											
03...	0945	492	1660	8.2	26.5	30	8.4	--	--	770	630
SEP											
01...	0930	308	--	--	--	--	--	--	--	--	--

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
NOV											
03...	210	110	160	26	2	8.8	1000	202	24	.50	7.7
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
JAN											
26...	170	96	190	33	3	10	1000	175	29	.40	6.4
APR											
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	180	77	100	22	2	8.7	950	138	15	.50	3.7
SEP											
01...	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)
NOV											
03...	1790	1600	2.4	826	2.10	<.060	.08	.80	.020	.040	.12
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
JAN											
26...	1720	1600	2.3	529	2.00	.120	.15	.80	.050	.060	.18
APR											
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	1420	1300	1.9	1890	.350	.070	.09	1.3	.040	.100	.31
SEP											
01...	--	--	--	--	--	--	--	--	--	--	--

< Less than.
K Non-ideal colony count.

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV												
03...	1500	11	<5	<1	<5	5	30	<5	330	.1	5	10
AUG												
03...	0945	12	<1	<1	<3	2	8	4	6	.2	3	10

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV					
03...	1500	171	172	79	99
DEC					
14...	1510	74	--	--	--
JAN					
26...	1600	114	--	--	--
APR					
14...	1110	269	--	--	--
14...	1500	532	--	--	--
AUG					
03...	0945	492	--	--	--
SEP					
01...	0930	308	52	43	100

< Less than.

06439000 CHERRY CREEK NEAR PLAINVIEW, SD

LOCATION.--Lat 44°44'38", long 102°03'11", in SW¼NE¼ sec.16, T.9 N., R.17 E., Meade County, Hydrologic Unit 10120113, on left bank 5 ft downstream from bridge on State Highway 73, 0.2 mi downstream from small right-bank tributary, 6.2 mi downstream from Red Owl Creek, and 11 mi northeast of Plainview.

DRAINAGE AREA.--1,190 mi^2, approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for October and November 1945, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,158.06 ft National Geodetic Vertical Datum of 1929. Prior to June 8, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Dec. 14 to Mar. 10, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 45.7 ft^3/s (33,110 acre-ft/yr); median of yearly mean discharges, 25 ft^3/s (18,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft^3/s Apr. 1, 1952 (gage height, 22.63 ft); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,120 ft^3/s at 1915 hours, Oct. 13 (gage height, 9.79 ft), no other peak above base of 1,000 ft^3/s; no flow for many days.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Dec. 14 to Mar. 10)

Oct. 1 to Mar. 7				Mar. 8 to Sept. 30			
3.7	0	5.0	66	3.35	0	3.8	4.8
3.8	.60	6.0	174	3.4	.08	4.0	11
3.9	2.4	7.0	333	3.5	.44	4.2	18
4.0	5.0	9.0	839	3.6	1.2	4.5	32
4.2	12	11.0	1,650	3.7	2.7	5.0	66
4.5	28						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	14	1.1	.00	1.0	8.5	6.5	5.9	2.4	.00	.00	.00
2	.00	9.5	1.5	.00	.95	9.0	6.2	6.5	2.2	.00	.00	.00
3	.00	7.3	1.1	.00	.90	10	6.2	5.7	1.8	.00	.00	.00
4	.00	5.7	1.1	.00	.90	9.5	6.8	3.9	1.5	.00	.00	.00
5	.00	4.7	1.1	.00	.90	9.5	9.7	3.1	1.2	.00	.00	.00
6	.00	4.5	1.1	.00	1.0	9.0	8.7	2.1	1.1	.00	.00	.00
7	.00	3.9	.95	.00	1.0	10	7.4	1.4	.98	.00	.00	.00
8	.00	3.4	1.1	.00	1.5	20	6.5	1.2	.78	.00	.00	.00
9	.00	2.9	1.5	.00	2.5	40	5.7	1.5	.47	.00	.00	.00
10	11	2.9	1.5	.00	3.5	45	5.4	1.5	.37	.00	.00	.00
11	454	2.6	.95	.10	5.2	40	4.8	1.8	.31	.00	.00	.00
12	612	2.9	.95	.25	7.5	32	7.6	10	.25	.00	.00	.00
13	1030	2.0	1.1	.30	8.0	27	7.4	7.4	.24	.00	.00	.00
14	611	1.8	1.1	.30	7.0	27	6.8	8.0	.17	.00	.00	.00
15	171	1.8	1.0	.25	6.5	39	6.2	14	.15	.00	.00	.00
16	107	1.8	1.0	.35	7.0	36	5.1	9.7	.17	.00	.00	.00
17	76	1.8	1.1	.80	7.5	28	5.1	43	.28	.00	.00	.00
18	55	1.8	1.2	1.5	8.5	23	4.8	38	.32	.00	.00	.00
19	42	1.8	1.1	2.0	8.0	21	5.1	25	.31	.00	.00	.00
20	31	1.8	1.0	1.8	7.5	20	5.1	22	.33	.00	.00	.00
21	23	1.6	.90	1.8	7.5	17	7.6	20	.29	.00	.00	.00
22	19	1.5	.70	1.7	8.0	15	18	16	.23	.00	.00	.00
23	15	1.3	.60	1.5	8.0	14	17	13	.17	.00	.00	.00
24	12	1.1	.40	1.3	8.0	13	14	12	.11	.00	.00	.00
25	10	1.1	.20	1.2	8.5	11	12	9.7	.05	.00	.00	.00
26	9.1	.78	.10	1.1	9.0	11	9.7	7.6	.01	.00	.00	.00
27	8.7	.60	.05	1.1	8.5	10	8.3	6.2	.00	.00	.00	.00
28	8.7	.78	.03	1.2	8.5	9.3	7.4	5.1	.00	.00	.00	.00
29	8.3	.78	.01	1.2	---	8.0	6.2	3.9	.00	.00	.00	.00
30	24	.95	.00	1.1	---	7.6	5.9	3.1	.00	.00	.00	.00
31	26	---	.00	1.0	---	7.1	---	2.5	---	.00	.00	---
TOTAL	3363.80	89.39	25.54	21.85	152.85	586.5	233.2	310.8	16.19	.00	.00	.00
MEAN	109	2.98	.82	.70	5.46	18.9	7.77	10.0	.54	.000	.000	.000
MAX	1030	14	1.5	2.0	9.0	45	18	43	2.4	.00	.00	.00
MIN	.00	.60	.00	.00	.90	7.1	4.8	1.2	.00	.00	.00	.00
AC-FT	6670	177	51	43	303	1160	463	616	32	.00	.00	.00

CAL YR 1982	TOTAL	53390.77	MEAN	146	MAX	6300	MIN	.00	AC-FT	105900
WTR YR 1983	TOTAL	4800.12	MEAN	13.2	MAX	1030	MIN	.00	AC-FT	9520

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD

LOCATION.--Lat 44°36'10", long 101°29'24", in NE¼NW¼ sec.5, T.7 N., R.22 E., Ziebach County, Hydrologic Unit 10120112, on left bank 0.5 mi east of village of Cherry Creek, 0.5 mi downstream from Cherry Creek and 1.7 mi upstream from Plum Creek.

DRAINAGE AREA.--23,900 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,699.29 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 18, 1960, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, Nov. 14 to Feb. 23, which are poor. Flow regulated by Angostura Reservoir 197 mi upstream (see station 06401000) since October 1949 and upstream reservoirs on Rapid Creek since 1956 and Belle Fourche River since 1952. Flow also affected by diversions for irrigation of about 70,000 acres and return flow from irrigated areas. Gage-height telemeter at station.

AVERAGE DISCHARGE.--23 years, 827 ft^3/s (599,200 acre-ft/yr); median of yearly mean discharges, 740 ft^3/s (536,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,900 ft^3/s May 22, 1982 (gage height, 15.77 ft); no flow Jan. 6 to Feb. 2, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,400 ft^3/s at 1800 hours, Oct. 11 (gage height, 11.05 ft); minimum daily, 180 ft^3/s Nov. 25.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 12-19, Feb. 24 to Apr. 18, June 21 to Aug. 31;
stage-discharge relation affected by ice Nov. 14 to Feb. 23)

1.4	223	4.0	2,270
1.7	348	6.0	5,580
2.0	503	8.0	10,400
2.5	817	10.0	17,200
3.0	1,220	12.0	25,400

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	817	492	300	220	240	870	954	1430	954	774	675	377
2	1170	470	290	220	230	847	1100	3050	892	718	591	376
3	1490	448	280	220	230	824	1100	3720	847	677	540	372
4	931	443	270	220	230	810	994	2130	674	614	537	353
5	760	443	270	250	220	840	908	1640	566	547	492	353
6	613	406	260	270	220	962	840	1400	532	538	412	334
7	526	401	260	270	230	1020	810	1220	617	530	376	330
8	492	396	250	260	240	1090	840	3630	543	510	333	348
9	650	386	250	250	250	1060	862	2020	507	448	311	353
10	5270	377	250	250	280	915	854	2190	480	372	319	353
11	19200	362	230	260	310	810	840	2070	442	320	303	362
12	13400	348	230	280	350	767	854	3050	397	307	284	358
13	7030	299	240	260	350	739	832	4200	387	289	264	344
14	5200	270	250	250	400	832	810	5220	401	282	261	330
15	3440	250	250	240	400	1030	908	2600	459	270	250	339
16	1960	270	250	240	450	1210	939	1430	503	260	361	348
17	1390	290	270	250	450	1190	1320	1010	590	300	305	372
18	1070	300	260	250	430	1080	1900	1010	782	500	358	406
19	884	270	250	260	430	962	2300	1010	2190	580	501	396
20	796	250	250	270	500	877	1930	1010	1660	481	405	372
21	713	220	240	260	600	803	1430	1050	1360	330	397	316
22	650	200	230	260	1000	767	1180	1460	1410	362	488	316
23	625	190	220	250	1100	753	1070	1660	1000	363	515	367
24	590	190	210	240	840	774	1070	1660	810	390	1060	382
25	549	180	210	230	796	796	1080	1570	693	513	1000	362
26	526	190	200	230	824	789	1100	1470	662	631	832	344
27	514	210	200	250	870	789	1160	1280	637	502	595	330
28	486	230	200	250	847	884	1240	1200	607	537	590	303
29	492	270	210	250	---	962	1280	1110	675	531	464	290
30	486	300	210	240	---	1060	1270	1070	685	498	413	288
31	492	---	220	240	---	915	---	1020	---	456	390	---
TOTAL	73212	9351	7510	7690	13317	28027	33775	59590	22962	14430	14622	10674
MEAN	2362	312	242	248	476	906	1126	1922	765	465	472	349
MAX	19200	492	300	280	1100	1210	2300	5220	2190	774	1060	406
MIN	486	180	200	220	220	739	810	1010	387	260	250	288
AC-FT	145200	18550	14900	15250	26410	55590	66990	118200	45550	28620	29000	20780

CAL YR 1982 TOTAL 594694 MEAN 1629 MAX 48400 MIN 25 AC-FT 1180000
WTR YR 1983 TOTAL 294960 MEAN 808 MAX 19200 MIN 180 AC-FT 585100

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1975 to September 1976.
WATER TEMPERATURES: January 1975 to September 1976, October 1977 to September 1978.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976.

INSTRUMENTATION.--Water-quality monitor June 16, 1977, to September 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,400 micromhos Jan. 27, 28, 1975; minimum daily, 620 micromhos Apr. 25, 1975.
WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 26, 1975; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 66,000 mg/L May 25, 1976; minimum daily mean, 80 mg/L Nov. 15-17, 1972.
SEDIMENT LOADS: Maximum daily, 2,530,000 tons June 12, 1972; minimum daily, 15 tons Dec. 14, 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT											
14...	1340	5160	920	--	12.5	--	--	--	--	--	--
NOV											
10...	1230	--	--	--	--	70	--	K10	<5	910	690
DEC											
10...	1300	248	2150	--	.0	--	--	--	--	--	--
JAN											
07...	1130	270	2450	--	2.5	--	--	--	--	--	--
MAR											
11...	1135	764	1920	--	2.0	--	--	--	--	--	--
APR											
08...	1100	867	2200	--	10.5	--	--	--	--	--	--
MAY											
06...	1145	1360	1440	8.0	16.5	600	--	--	--	550	380
JUN											
06...	1250	528	1950	--	21.5	--	--	--	--	--	--
29...	1240	659	1950	--	22.0	--	--	--	--	--	--
JUL											
28...	1105	542	1500	--	24.0	--	--	--	--	--	--
SEP											
02...	1300	--	--	--	--	29	--	E37	230	780	680

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	220	86	210	33	3	11	1000	212	60	.40	9.0
DEC											
10...	--	--	--	--	--	--	--	--	--	--	--
JAN											
07...	--	--	--	--	--	--	--	--	--	--	--
MAR											
11...	--	--	--	--	--	--	--	--	--	--	--
APR											
08...	--	--	--	--	--	--	--	--	--	--	--
MAY											
06...	140	49	130	34	2	8.1	640	171	22	.40	10
JUN											
06...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
28...	--	--	--	--	--	--	--	--	--	--	--
SEP											
02...	180	80	150	29	2	11	980	103	34	.50	6.7

< Less than.
E Estimated.
K Non-ideal colony count.

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO4) (71886)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	1880	1700	2.6	1900	1.10	<.060	.08	1.3	.290	.130	.40
DEC 10...	--	--	--	--	--	--	--	--	--	--	--
JAN 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 11...	--	--	--	--	--	--	--	--	--	--	--
APR 08...	--	--	--	--	--	--	--	--	--	--	--
MAY 06...	1110	1100	1.5	4080	.630	.100	.13	4.7	.030	.780	2.4
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUL 28...	--	--	--	--	--	--	--	--	--	--	--
SEP 02...	1590	1500	2.2	--	<.100	.090	.12	.80	.030	.090	.28

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 10...	1230	4	<2	<1	2	2	20	<2	160	<.1	3	10
MAY 06...	1145	8	<1	<1	<3	6	4	1	10	.2	3	32
SEP 02...	1300	13	<1	<1	<3	12	4	<1	7	.8	2	7

< Less than.

06439980 LAKE OAHE NEAR PIERRE, SD

LOCATION.--Lat 44°27'30", long 100°23'29", in NE¼ sec.1, T.111 N., R.80 W., 5th principal meridian, Hughes County, Hydrologic Unit 10130105, in Pier A of Control Tower No. 1 of powerhouse intake structure of dam on Missouri River, 6.0 mi northwest of Pierre, 7.1 mi upstream from Bad River, and at mile 1,072.3.

DRAINAGE AREA.--243,500 mi^2, approximately.

PERIOD OF RECORD.--August 1958 to current year (monthend contents only). Prior to October 1967, published as Oahe Reservoir near Pierre.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 14, 1959, nonrecording gages at various locations upstream from outlet works, Jan. 14, 1959, to Sept. 30, 1962, recorder in Tower No. 1 of outlet works, all at same datum.

REMARKS.--Reservoir is formed by an earthfill dam; storage began in August 1958. Maximum capacity, 23,338,000 acre-ft below elevation 1,620.0 ft (top of spillway gates). Normal maximum, 22,240,000 acre-ft below 1,617.0 ft, of which about 2,390,000 acre-ft is designated for flood control. Inactive storage, 5,451,000 acre-ft below elevation 1,540.0 ft. Dead storage, 1,970 acre-ft below elevation 1,425.0 ft (invert of lowest outlet tunnel). Figures given herein represent elevations at powerhouse intake structure and total contents adjusted for wind effect.

The spillway consists of a gated chute with flat crest at elevation 1,596.5 ft, 8 gates, 50 by 23.5 ft each; design capacity, 300,000 ft^3/s. The outlet works consist of 7 turbines with a generating capacity of 85,000 kilowatts each. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevation and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 22,681,000 acre-ft Aug. 22, 1975, affected by wind; minimum since initial filling, 14,815,000 acre-ft Sept. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 22,002,000 acre-ft July 7; minimum contents, 18,498,000 acre-ft Feb. 1.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	1607.86	19166000	
Oct. 31	1607.82	19152000	-14000
Nov. 30	1608.54	19398000	+246000
Dec. 31	1607.72	19135000	-263000
CAL YR 1982			+4559000
Jan. 31	1605.75	18499000	-636000
Feb. 28	1607.40	19005000	+506000
Mar. 31	1611.37	20297000	+1292000
Apr. 30	1614.36	21269000	+972000
May 31	1616.03	21914000	+645000
June 30	1615.87	21820000	-94000
July 31	1615.79	21795000	-25000
Aug. 31	1613.75	21075000	-720000
Sept. 30	1612.59	20649000	-426000
WTR YR 1983			+1483000

06440000 MISSOURI RIVER AT PIERRE, SD
(National stream-quality accounting network station)

LOCATION.--Lat 44°22'25", long 100°22'20", in SE¼ sec.21, T.5 N., R.31 E., Hughes County, Hydrologic Unit 10140102, at discontinued gaging station, near right bank on downstream side of pier of Chicago and North Western Transportation Company bridge, 1.3 mi (2.1 km) upstream from Bad River, 5.8 mi (9.3 km) downstream from Oahe Dam, and at mile 1,006.5 (1,716 km).

DRAINAGE AREA.--243,500 mi² (630,700 km²), approximately.

PERIOD OF RECORD.--Water years 1971 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1971 to September 1981.
WATER TEMPERATURES: July 1971 to September 1981.

COOPERATION.--Flow completely regulated by Lake Oahe (station 06439980) 5.8 mi (9.3 km) upstream. Discharge furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 895 micromhos Dec. 17, 1980; minimum daily, 530 micromhos Dec. 24, 1974, Dec. 17, 1980.
WATER TEMPERATURES: Maximum daily, 24.0°C July 31, Aug. 3, 1977, Aug. 21, 1980; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT											
27...	1415	32000	754	7.9	13.0	1.6	8.8	<1	>100	230	76
DEC											
28...	1400	20400	--	--	2.0	--	--	--	--	--	--
28...	1400	20400	895	8.6	2.0	2.7	--	K8	K15	250	88
MAR											
01...	1445	19100	728	8.4	2.0	.90	13.7	<1	K6	250	88
APR											
27...	1420	3100	762	7.9	4.0	1.8	12.3	--	--	250	89
JUN											
24...	0930	10200	828	8.7	13.5	1.4	--	K2	K14	250	80
AUG											
18...	1000	41300	803	7.8	20.0	1.3	7.9	K8	K23	250	83

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT											
27...	55	22	71	40	2	4.9	240	153	15	.50	4.7
DEC											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	59	24	75	39	2	4.9	230	158	10	.50	4.6
MAR											
01...	59	24	78	40	2	5.1	230	159	11	.50	5.1
APR											
27...	60	24	76	39	2	5.1	230	161	12	.50	4.7
JUN											
24...	59	25	75	39	2	4.6	240	171	11	.50	4.4
AUG											
18...	61	24	75	39	2	4.1	210	168	11	.50	4.9

< Less than.
> More than.
K Non-ideal colony count.

06440000 MISSOURI RIVER AT PIERRE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO4) (71886)
OCT 27...	492	510	.67	42500	.120	.070	.09	1.4	<.010	.010	.03
DEC 28...	--	--	--	--	--	--	--	--	--	--	--
28...	509	500	.69	28000	.150	.130	.17	.70	.290	.030	.09
MAR 01...	503	510	.68	25900	.130	.150	.19	.80	.020	.030	.09
APR 27...	508	510	.69	4250	.120	<.060	--	1.4	.050	.040	.12
JUN 24...	510	520	.69	14000	--	--	--	--	--	--	--
AUG 18...	617	490	.84	68800	<.100	.130	.17	.80	.010	<.010	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
OCT 27...	1415	--	2	--	1	--	<1	<3	--	6	--
MAR 01...	1445	--	2	--	4	--	<1	<3	--	6	--
APR 27...	1420	--	2	--	<1	--	<1	<3	--	3	--
JUN 24...	0930	--	2	--	2	--	<1	<3	--	3	--

DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 27...	15	--	4	--	7	--	.1	--	2	--	20
MAR 01...	6	--	1	--	9	--	.2	--	1	--	37
APR 27...	5	--	1	--	7	--	.2	--	2	--	36
JUN 24...	21	--	1	--	8	--	.1	--	2	--	20

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
OCT 27...	1415	32000	35	3020	99	--	--	--	--	--	--
DEC 28...	1400	20400	10	551	91	--	--	--	--	--	--
28...	1400	20400	10	551	91	--	--	--	--	--	--
MAR 01...	1445	19100	--	--	--	--	--	--	--	--	--
APR 27...	1420	3100	--	--	--	--	--	--	--	--	--
JUN 24...	0930	10200	--	--	--	--	--	--	--	--	--
AUG 18...	1000	41300	4	446	89	--	--	--	--	--	--

< Less than.

06441000 BAD RIVER NEAR MIDLAND, SD

LOCATION.--Lat 44°04'01", long 101°09'36", in NE¼NW¼ sec.7, T.1 N., R.25 E., Haakon County, Hydrologic Unit 10140102, on right bank at downstream side of bridge on State Highway 63, 0.4 mi southwest of Midland, 2.0 mi upstream from Mitchell Creek, and 3.7 mi upstream from Ash Creek.

DRAINAGE AREA.--1,460 mi^2, approximately.

PERIOD OF RECORD.--October 1945 to current year. Prior to February 1946 monthly discharge only, published in WSP 1309.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,849.14 ft National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1961, nonrecording gage, and Feb. 21, 1961, to June 14, 1967, water-stage recorder at site 4.2 mi downstream at datum 15.72 ft lower. June 15 to July 26, 1967, nonrecording gage at site 30 ft upstream and July 27, 1967, to June 14, 1971, water-stage recorder at site 60 ft upstream, both at present datum.

REMARKS.--Records poor. Only daily discharges above 100 ft^3/s are being published.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft^3/s June 15, 1967 (gage height, 24.44 ft, from floodmarks, 20.10 ft, from floodmarks), at former site and datum, from rating curve extended above 16,000 ft^3/s; no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 12	2400	982	10.62	May 15	0500	622	9.32
May 2	0100	*4380	*17.95				

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

Daily discharge, in cubic feet per second, above 100 ft^3/s are given herewith:

Oct. 10	133	May 2	3780	May 7	102
Oct. 11	415	May 3	2740	May 13	174
Oct. 12	842	May 4	1970	May 14	302
Oct. 13	542	May 5	488	May 15	416
Oct. 14	150	May 6	192	May 16	114
May 1	539				

06441500 BAD RIVER NEAR FORT PIERRE, SD

LOCATION.--Lat 44°19'36", long 100°23'02", in NW¼NW¼ sec.10, T.4 N., R.31 E., Stanley County, Hydrologic Unit 10140102, on right bank at downstream side of highway bridge, 2.1 mi south of Fort Pierre, 4.3 mi downstream from Willow Creek, and 6.0 mi upstream from mouth.

DRAINAGE AREA.--3,107 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for July 1932 to February 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 856: 1929(M), 1937.

GAGE.--Water-stage recorder. Datum of gage is 1,427.83 ft National Geodetic Vertical Datum of 1929. Prior to July 10, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Nov. 19 to Feb. 23, which are poor. U.S. Weather Bureau gage-height telemeter at station.

AVERAGE DISCHARGE.--55 years, 147 ft³/s (106,500 acre-ft/yr); median of yearly mean discharges, 99 ft³/s (71,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,800 ft³/s June 18, 1967 (gage height, 29.55 ft); no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1927 reached a stage of 30.89 ft, from floodmarks, discharge, about 55,000 ft³/s. Flood in July 1905 reached a stage about 2 ft higher than that in April 1927.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	1000	2800	10.58	May 12	1000	3720	12.14
May 2	0600	*9130	*19.41	June 20	1000	3400	11.58

No flow Oct. 6, 7, Aug. 2 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	6.6	2.6	1.7	2.1	7.9	305	2780	26	21	.01	.00
2	.04	7.0	2.6	1.6	2.1	7.5	179	6170	22	9.8	.00	.00
3	.03	7.0	2.6	1.6	2.1	7.9	152	4790	19	6.2	.00	.00
4	.02	5.3	2.5	1.7	2.0	6.6	124	4460	15	4.4	.00	.00
5	.01	4.4	2.5	1.9	2.0	7.0	105	3150	13	5.8	.00	.00
6	.00	4.4	2.5	2.0	2.0	6.5	79	1860	11	2.7	.00	.00
7	.00	4.4	2.4	2.0	2.1	6.5	61	1110	9.8	2.2	.00	.00
8	.01	4.4	2.3	2.0	2.2	6.0	45	679	8.3	2.2	.00	.00
9	416	4.4	2.3	2.0	2.2	6.0	25	478	6.2	1.6	.00	.00
10	2170	4.6	2.2	2.0	2.3	7.0	19	363	6.2	.76	.00	.00
11	1160	4.6	2.2	2.2	2.3	15	15	403	9.8	.27	.00	.00
12	1010	4.4	2.3	2.5	3.0	46	13	2770	7.0	.15	.00	.00
13	1140	4.4	2.3	2.5	4.0	50	66	1250	19	.09	.00	.00
14	1370	4.1	2.4	2.5	5.0	61	71	700	15	.04	.00	.00
15	675	4.4	2.4	2.3	4.5	54	198	664	7.9	.01	.00	.00
16	295	3.8	2.7	2.3	6.0	41	213	886	4.9	.01	.00	.00
17	187	3.6	2.8	2.2	7.0	37	157	601	4.6	.03	.00	.00
18	140	3.0	2.9	2.3	15	34	124	327	10	.02	.00	.00
19	123	3.2	3.0	2.4	20	27	107	238	114	.04	.00	.00
20	112	3.2	3.0	2.4	17	19	106	182	2230	.06	.00	.00
21	81	3.1	2.8	2.5	16	17	90	149	399	.09	.00	.00
22	59	3.1	2.8	2.5	17	20	81	123	127	.08	.00	.00
23	49	3.1	2.6	2.4	17	18	62	106	87	.15	.00	.00
24	38	2.8	2.6	2.3	15	9.8	44	87	85	.13	.00	.00
25	30	2.5	2.4	2.2	9.2	8.3	30	76	81	.10	.00	.00
26	24	2.3	2.2	2.2	13	9.2	27	64	49	.09	.00	.00
27	20	2.3	2.0	2.3	11	13	21	53	37	.08	.00	.00
28	17	2.4	1.8	2.3	8.8	20	15	44	27	.06	.00	.00
29	13	2.4	1.7	2.3	---	80	13	34	25	.06	.00	.00
30	9.8	2.5	1.6	2.2	---	314	13	30	23	.05	.00	.00
31	7.5	---	1.6	2.2	---	360	---	27	---	.03	.00	---
TOTAL	9146.45	117.7	74.6	67.5	211.9	1322.2	2560	34654	3498.7	58.30	.01	.00
MEAN	295	3.92	2.41	2.18	7.57	42.7	85.3	1118	117	1.88	.000	.000
MAX	2170	7.0	3.0	2.5	20	360	305	6170	2230	21	.01	.00
MIN	.00	2.3	1.6	1.6	2.0	6.0	13	27	4.6	.01	.00	.00
AC-FT	18140	233	148	134	420	2620	5080	68740	6940	116	.02	.00

CAL YR 1982 TOTAL 101654.62 MEAN 279 MAX 11600 MIN .00 AC-FT 201600
WTR YR 1983 TOTAL 51711.36 MEAN 142 MAX 6170 MIN .00 AC-FT 102600

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-53, 1972 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1971 to current year.
WATER TEMPERATURES: October 1972 to current year.

REVISED RECORDS.--WRD SD-81-1: 1979-80.

REMARKS.--Records fair. No flow Oct. 6, 7, Aug. 2 to Sept. 30. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 124,000 mg/L July 17, 1981; minimum daily mean, 0 mg/L on many days each year.
SEDIMENT LOADS: Maximum daily, 949,000 tons May 14, 1982; minimum daily, 0 ton on many days each year.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 41,800 mg/L June 20; minimum daily mean, 0 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 593,000 tons May 2; minimum daily, 0 ton on many days.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)
OCT									
01...	1445	.04	5.5	55	.00	41	--	--	--
20...	1000	119	7.0	3160	1020	100	93	94	98
NOV									
05...	1030	4.1	2.5	236	2.6	94	--	--	--
23...	1340	3.1	.0	--	--	--	--	--	--
DEC									
17...	1310	2.8	2.0	129	.98	59	--	--	--
20...	1535	3.0	1.0	104	.84	69	--	--	--
28...	1400	1.8	2.0	10	.05	91	--	--	--
30...	1430	1.6	2.0	57	.25	92	--	--	--
JAN									
07...	1440	2.0	1.0	364	2.0	94	--	--	--
14...	1345	--	2.0	364	--	94	--	--	--
21...	1010	2.4	2.0	299	1.9	95	--	--	--
FEB									
07...	1230	2.1	1.0	346	2.0	91	--	--	--
11...	1520	2.3	5.0	354	2.2	98	--	--	--
16...	1315	6.0	3.0	370	6.0	97	--	--	--
24...	1445	15	1.5	337	14	99	--	--	--
MAR									
25...	1325	7.9	3.0	392	8.4	97	--	--	--
APR									
22...	1440	81	16.5	--	--	--	--	--	--
MAY									
02...	0940	8400	16.0	21700	492000	100	--	--	--
02...	1200	5860	16.0	--	--	--	--	--	--
05...	1000	3200	14.5	--	--	--	--	--	--
23...	0950	103	15.0	432	120	100	--	--	--
JUN									
25...	0950	86	22.5	5630	1300	100	--	--	--
JUL									
25...	1120	.10	27.5	--	--	--	--	--	--

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1982 TO SEPTMEBER 1983
RANDOM INSTANTANEOUS

OCT 1	5.5	DEC 20	1.0	FEB 11	0.5	APR 1	3.5	MAY 5	14.5	JUN 17	19.0
15	5.0	30	2.0	16	3.0	8	9.0	13	14.5	23	22.5
20	7.0	JAN 7	1.0	24	1.5	15	6.5	20	14.0	JUL 1	23.0
29	1.5	8	1.0	MAR 4	2.0	22	16.5	23	15.0	8	25.5
NOV 5	1.5	14	2.0	17	1.5	24	14.0	JUN 3	21.0	12	25.0
23	0.0	21	2.0	25	3.0	29	10.5	10	20.5	25	27.5
DEC 17	2.0	FEB 7	1.0	31	7.5	MAY 2	16.0				

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.04	55	.0	6.6	265	4.7	2.6	162	1.1
2	.04	40	.0	7.0	258	4.9	2.6	160	1.1
3	.03	30	.0	7.0	251	4.7	2.6	158	1.1
4	.02	20	.0	5.3	243	3.5	2.5	156	1.1
5	.01	10	.0	4.4	236	2.8	2.5	154	1.0
6	.00	0	.0	4.4	233	2.8	2.5	152	1.0
7	.00	0	.0	4.4	230	2.7	2.4	150	.97
8	.01	3	.0	4.4	227	2.7	2.3	148	.92
9	416	9850	11100	4.4	224	2.7	2.3	146	.91
10	2170	30900	181000	4.6	221	2.7	2.2	144	.86
11	1160	17200	53900	4.6	218	2.7	2.2	142	.84
12	1010	16500	45000	4.4	215	2.6	2.3	140	.87
13	1140	18700	57600	4.4	212	2.5	2.3	138	.86
14	1370	21200	78400	4.1	209	2.3	2.4	136	.88
15	675	13900	25300	4.4	206	2.4	2.4	134	.87
16	295	8250	6570	3.8	203	2.1	2.7	132	.96
17	187	5900	2980	3.6	200	1.9	2.8	129	.98
18	140	4450	1680	3.0	197	1.6	2.9	118	.92
19	123	3700	1230	3.2	194	1.7	3.0	111	.90
20	112	3100	937	3.2	191	1.7	3.0	104	.84
21	81	2700	590	3.1	188	1.6	2.8	85	.64
22	59	2300	366	3.1	185	1.5	2.8	70	.53
23	49	1900	251	3.1	182	1.5	2.6	60	.42
24	38	1500	154	2.8	179	1.4	2.6	50	.35
25	30	1100	89	2.5	176	1.2	2.4	40	.26
26	24	700	45	2.3	173	1.1	2.2	30	.18
27	20	500	27	2.3	170	1.1	2.0	20	.11
28	17	300	14	2.4	168	1.1	1.8	10	.05
29	13	288	10	2.4	166	1.1	1.7	20	.09
30	9.8	280	7.4	2.5	164	1.1	1.6	57	.25
31	7.5	272	5.5	---	---	---	1.6	61	.26
TOTAL	9146.45	---	467255.9	117.7	---	68.4	74.6	---	22.12
		JANUARY			FEBRUARY			MARCH	
1	1.7	65	.30	2.1	327	1.9	7.9	200	4.3
2	1.6	69	.30	2.1	330	1.9	7.5	173	3.5
3	1.6	73	.32	2.1	333	1.9	7.9	146	3.1
4	1.7	77	.35	2.0	336	1.8	6.6	119	2.1
5	1.9	81	.42	2.0	339	1.8	7.0	100	1.9
6	2.0	85	.46	2.0	342	1.8	6.5	90	1.6
7	2.0	89	.48	2.1	346	2.0	6.5	80	1.4
8	2.0	320	1.7	2.2	348	2.1	6.0	70	1.1
9	2.0	400	2.2	2.2	350	2.1	6.0	60	.97
10	2.0	392	2.1	2.3	352	2.2	7.0	50	.95
11	2.2	385	2.3	2.3	354	2.2	15	120	4.9
12	2.5	377	2.5	3.0	357	2.9	46	392	49
13	2.5	370	2.5	4.0	360	3.9	50	672	91
14	2.5	364	2.5	5.0	363	4.9	61	786	129
15	2.3	354	2.2	4.5	366	4.4	54	736	107
16	2.3	344	2.1	6.0	370	6.0	41	671	74
17	2.2	335	2.0	7.0	400	7.6	37	615	61
18	2.3	326	2.0	15	450	18	34	587	54
19	2.4	317	2.1	20	500	27	27	559	41
20	2.4	308	2.0	17	467	21	19	531	27
21	2.5	299	2.0	16	435	19	17	503	23
22	2.5	302	2.0	17	403	18	20	475	26
23	2.4	304	2.0	17	370	17	18	467	22
24	2.3	307	1.9	15	337	14	9.8	419	11
25	2.2	309	1.8	9.2	308	7.7	8.3	392	8.8
26	2.2	312	1.9	13	281	9.9	9.2	400	9.9
27	2.3	314	1.9	11	254	7.5	13	600	21
28	2.3	317	2.0	8.8	227	5.4	20	800	43
29	2.3	319	2.0	---	---	---	80	7860	1700
30	2.2	322	1.9	---	---	---	314	33400	28300
31	2.2	324	1.9	---	---	---	360	31400	30500
TOTAL	67.5	---	52.13	211.9	---	215.9	1322.2	---	61323.52

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	305	24300	20000	2780	35000	263000	26	171	12
2	179	16200	7830	6170	35600	593000	22	142	8.4
3	152	10000	4100	4790	7600	98300	19	110	5.6
4	124	8300	2780	4460	4500	54200	15	158	6.4
5	105	6200	1760	3150	4200	35700	13	206	7.2
6	79	4400	939	1860	3910	19600	11	254	7.5
7	61	2600	428	1110	3610	10800	9.8	302	8.0
8	45	600	73	679	3310	6070	8.3	350	7.8
9	25	520	35	478	3020	3900	6.2	398	6.7
10	19	480	25	363	2720	2670	6.2	445	7.4
11	15	440	18	403	4500	4900	9.8	470	12
12	13	400	14	2770	28100	210000	7.0	470	8.9
13	66	4100	731	1250	11000	37100	19	540	28
14	71	4500	863	700	4200	7940	15	520	21
15	198	11800	6310	664	3100	5560	7.9	465	9.9
16	213	11100	6380	886	6300	15100	4.9	396	5.2
17	157	8000	3390	601	7200	11700	4.6	340	4.2
18	124	5900	1980	327	5200	4590	10	600	16
19	107	4600	1330	238	3200	2060	114	2240	689
20	106	2700	773	182	1770	870	2230	41800	252000
21	90	1800	437	149	1320	531	399	29500	31800
22	81	1400	306	123	878	292	127	18400	6310
23	62	1000	167	106	432	124	87	5400	1270
24	44	872	104	87	403	95	85	4300	987
25	30	722	58	76	374	77	81	3600	787
26	27	574	42	64	345	60	49	2020	267
27	21	426	24	53	3320	475	37	1740	174
28	15	278	11	44	287	34	27	1460	106
29	13	130	4.6	34	258	24	25	1190	80
30	13	120	4.2	30	229	19	23	908	56
31	---	---	---	27	200	15	---	---	---
TOTAL	2560	---	60916.8	34654	---	1388806	3498.7	---	294708.2
		JULY			AUGUST			SEPTEMBER	
1	21	630	36	.01	0	.00	.00	0	.00
2	9.8	570	15	.00	0	.00	.00	0	.00
3	6.2	515	8.6	.00	0	.00	.00	0	.00
4	4.4	460	5.5	.00	0	.00	.00	0	.00
5	5.8	405	6.3	.00	0	.00	.00	0	.00
6	2.7	350	2.6	.00	0	.00	.00	0	.00
7	2.2	325	1.9	.00	0	.00	.00	0	.00
8	2.2	302	1.8	.00	0	.00	.00	0	.00
9	1.6	305	1.3	.00	0	.00	.00	0	.00
10	.76	310	.64	.00	0	.00	.00	0	.00
11	.27	315	.23	.00	0	.00	.00	0	.00
12	.15	322	.13	.00	0	.00	.00	0	.00
13	.09	200	.05	.00	0	.00	.00	0	.00
14	.04	100	.01	.00	0	.00	.00	0	.00
15	.01	10	.00	.00	0	.00	.00	0	.00
16	.01	10	.00	.00	0	.00	.00	0	.00
17	.03	10	.00	.00	0	.00	.00	0	.00
18	.02	10	.00	.00	0	.00	.00	0	.00
19	.04	15	.00	.00	0	.00	.00	0	.00
20	.06	15	.00	.00	0	.00	.00	0	.00
21	.09	20	.00	.00	0	.00	.00	0	.00
22	.08	20	.00	.00	0	.00	.00	0	.00
23	.15	20	.00	.00	0	.00	.00	0	.00
24	.13	20	.00	.00	0	.00	.00	0	.00
25	.10	20	.00	.00	0	.00	.00	0	.00
26	.09	15	.00	.00	0	.00	.00	0	.00
27	.08	15	.00	.00	0	.00	.00	0	.00
28	.06	10	.00	.00	0	.00	.00	0	.00
29	.06	10	.00	.00	0	.00	.00	0	.00
30	.05	10	.00	.00	0	.00	.00	0	.00
31	.03	10	.00	.00	0	.00	---	---	---
TOTAL	58.30	---	80.06	0.01	---	0.00	0.00	---	0.00

06442000 MEDICINE KNOLL CREEK NEAR BLUNT, SD

LOCATION.--Lat 44°33'46", long 99°54'50", in NW¼ sec.31, T.113 N., R.75 W., Sully County, Hydrologic Unit 10140103, on left bank at downstream side of highway bridge, 4.8 mi northeast of Blunt and 5.5 mi upstream from South Fork Medicine Knoll Creek.

DRAINAGE AREA.--317 m^2.

PERIOD OF RECORD.--March 1950 to current year. Prior to October 1959, published as Medicine Creek near Blunt.

REVISED RECORDS.--WRD SD-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,611.08 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 31, 1950, nonrecording gage at same site and datum.

REMARKS.--Records fair. Only daily discharges above 25 ft^3/s are being published.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,830 ft^3/s Apr. 5, 1952 (gage height, 12.34 ft), from floodmarks; maximum gage height, 13.2 ft between Mar. 26-29, 1950, from floodmarks (backwater from ice); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 111 ft^3/s at 1645 hours, June 28 (gage height, 9.56 ft); no other peak above base of 50 ft^3/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

Daily discharge, in cubic feet per second, above 25 ft^3/s are given herewith:

June 28	84
June 29	91
June 30	56
July 1	33

06442500 MEDICINE CREEK AT KENNEBEC, SD

LOCATION.--Lat 43°54'17", long 99°52'35", in NW¼NE¼ sec.18, T.105 N., R.75 W., Lyman County, Hydrologic Unit 10140104, on right bank 4 ft downstream from highway bridge, 0.5 mi west of Kennebec and 0.5 mi downstream from small right-bank tributary.

DRAINAGE AREA.--465 mi^2, approximately.

PERIOD OF RECORD.--July 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,659.64 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 28, 1954, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, Nov. 30 to Feb. 24 and Feb. 27 to Mar. 11, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--29 years, 16.4 ft^3/s (11,880 acre-ft/yr); median of yearly mean discharges, 6.5 ft^3/s (4,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,970 ft^3/s Mar. 28, 1960 (gage height, 16.71 ft); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1952 reached a stage of 17.0 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 9	unknown	1210	10.16	May 2	1815	*2630	*14.07
Mar. 6	--	180	ice jam	May 13	1515	1390	10.74
Apr. 2	0845	712	8.26				

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	3.6	.00	.00	.00	2.5	127	125	4.3	2.2	.00	.00
2	.00	2.9	.00	.00	.00	3.0	544	1560	4.0	1.9	.00	.00
3	.00	2.2	.00	.00	.00	4.0	281	1720	3.2	1.8	.00	.00
4	.00	1.7	.00	.00	.00	10	155	713	3.0	1.5	.00	.00
5	.00	1.5	.00	.00	.00	100	111	304	2.5	1.3	.00	.00
6	.00	1.4	.00	.00	.00	150	80	154	2.4	1.1	.00	.00
7	.00	1.3	.00	.00	.00	100	58	84	2.2	.92	.00	.00
8	200	1.2	.00	.00	.00	60	44	58	2.0	.71	.00	.00
9	1000	1.2	.00	.00	.00	40	36	46	1.7	.50	.00	.00
10	900	1.2	.00	.00	.00	30	29	31	1.4	.20	.00	.00
11	500	1.2	.00	.00	.00	50	24	24	1.3	.00	.00	.00
12	200	1.4	.00	.00	.05	80	21	118	5.0	.00	.00	.00
13	80	.71	.00	.00	.10	70	22	970	44	.00	.00	.00
14	40	.57	.00	.00	.20	25	20	676	27	.00	.00	.00
15	30	.50	.00	.00	.15	15	19	237	13	.00	.00	.00
16	25	.38	.00	.00	.15	13	21	119	8.0	.00	.00	.00
17	20	.38	.00	.00	.20	20	28	70	6.5	.00	.00	.00
18	19	.38	.00	.00	.20	40	73	46	5.3	.00	.00	.00
19	18	.44	.00	.00	.20	35	66	34	4.2	.00	.00	.00
20	18	.38	.00	.00	.25	20	50	27	3.9	.00	.00	.00
21	17	.32	.00	.00	.40	10	42	22	3.1	.00	.00	.00
22	17	.20	.00	.00	.60	8.0	31	19	2.6	.00	.00	.00
23	16	.14	.00	.00	.70	7.0	26	16	2.3	.00	.00	.00
24	15	.09	.00	.00	1.0	6.0	21	13	2.1	.00	.00	.00
25	15	.05	.00	.00	1.3	5.8	17	11	1.9	.00	.00	.00
26	13	.02	.00	.00	1.4	6.1	14	9.6	1.8	.00	.00	.00
27	10	.00	.00	.00	1.5	6.9	12	8.9	1.6	.00	.00	.00
28	7.8	.00	.00	.00	2.0	5.8	11	7.6	1.9	.00	.00	.00
29	6.7	.00	.00	.00	---	7.6	10	6.0	2.0	.00	.00	.00
30	5.4	.00	.00	.00	---	11	9.4	5.1	2.0	.00	.00	.00
31	4.3	---	.00	.00	---	23	---	4.6	---	.00	.00	---
TOTAL	3177.20	25.36	.00	.00	10.40	964.7	2002.4	7238.8	166.2	12.13	.00	.00
MEAN	102	.85	.000	.000	.37	31.1	66.7	234	5.54	.39	.000	.000
MAX	1000	3.6	.00	.00	2.0	150	544	1720	44	2.2	.00	.00
MIN	.00	.00	.00	.00	.00	2.5	9.4	4.6	1.3	.00	.00	.00
AC-FT	6300	50	.00	.00	21	1910	3970	14360	330	24	.00	.00

CAL YR 1982 TOTAL 25255.49 MEAN 69.2 MAX 2800 MIN .00 AC-FT 50090
WTR YR 1983 TOTAL 13597.19 MEAN 37.3 MAX 1720 MIN .00 AC-FT 26970

06442700 LAKE SHARPE NEAR FORT THOMPSON, SD

LOCATION.--Lat 44°02'18", long 99°26'45", in SE¼ sec.27, T.107 N., R.72 W., Lyman County, Hydrologic Unit 10140101, at left approach wall of powerhouse at Big Bend Dam on Missouri River, 2.5 mi south of Fort Thompson, and at mile 987.4.

DRAINAGE AREA.--249,300 mi^2, approximately.

PERIOD OF RECORD.--July 1963 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam; closure made July 1963; intentional storage began November 1963. Maximum capacity, 1,884,000 acre-ft below elevation, 1,423.0 ft (top of spillway gates). Normal maximum, 1,699,000 acre-ft below elevation 1,420.0 ft. Inactive storage, 1,424,000 acre-ft below elevation 1,415.0 ft. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of a concrete chute with flat crest at elevation 1,385.0 ft surmounted by 8 taintor gates, each 40 by 38 ft; design capacity, 390,000 ft^3/s. Normal releases are through 8 power units (completed in July 1966), with a generating capacity of 58,500 kilowatts each. Maximum release through powerplant about 100,000 ft^3/s. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevation and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,829,000 acre-ft Apr. 22, 1971, affected by wind; minimum since initial filling, 1,448,000 acre-ft Sept. 17, 1967, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,786,000 acre-ft Nov. 28; minimum contents, 1,662,000 acre-ft Nov. 5.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	1419.95	1703000	
Oct. 31	1420.73	1744000	+41000
Nov. 30	1420.42	1731000	-13000
Dec. 31	1420.10	1708000	-23000
CAL YR 1982			-42000
Jan. 31	1420.88	1744000	+36000
Feb. 28	1421.00	1758000	+14000
Mar. 31	1420.30	1723000	-35000
Apr. 30	1420.90	1753000	+30000
May 31	1420.61	1735000	-18000
June 30	1420.48	1723000	-12000
July 31	1420.97	1760000	+37000
Aug. 31	1420.56	1731000	-29000
Sept. 30	1420.18	1703000	-28000
WTR YR 1983			0

06442950 CROW CREEK NEAR GANN VALLEY, SD

LOCATION.--Lat 43°59'29", long 99°13'07", in NE¼NW¼ sec.15, T.106 N., R.70 W., Buffalo County, Hydrologic Unit 10140105, near center of span at downstream side of highway bridge, 6.4 mi upstream from Smith Creek, 6.9 mi downstream from Elm Creek, and 12.0 mi southwest of Gann Valley.

DRAINAGE AREA.--670 mi^2, approximately.

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,434.73 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--12 years, 17.6 ft^3/s (12,750 acre-ft/yr); median of yearly mean discharges, 12 ft^3/s (8,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,900 ft^3/s Mar. 22, 1978 (gage height, 14.60 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 9	1300	*898	*8.94	May 14	1900	158	4.70
Mar. 6	0630	159	4.64	June 15	1230	508	6.98
May 12	0700	525	7.07	June 22	1200	635	7.63

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.10	.00	.00	.00	1.2	23	4.4	2.0	14	.00	.00
2	.00	.06	.00	.00	.00	1.5	18	6.8	2.2	13	.00	.00
3	.00	.02	.00	.00	.00	2.5	25	6.4	2.8	12	.00	.00
4	.00	.00	.00	.00	.00	4.0	27	6.8	2.8	9.0	.00	.00
5	.00	.00	.00	.00	.00	6.0	24	5.6	2.6	8.0	.00	.00
6	.00	.00	.00	.00	.00	100	20	10	2.0	7.0	.00	.00
7	.00	.00	.00	.00	.00	24	18	9.3	1.8	6.0	.00	.00
8	98	.00	.00	.00	.00	17	16	8.7	1.5	5.0	.00	.00
9	685	.00	.00	.00	.00	16	14	7.5	1.3	4.5	.00	.00
10	174	.00	.00	.00	.00	14	11	5.6	1.2	4.0	.00	.00
11	36	.00	.00	.00	.00	13	9.3	56	1.0	3.5	.00	.00
12	15	.00	.00	.00	.10	29	9.3	402	1.1	3.0	.00	.00
13	6.0	.00	.00	.00	.15	69	9.3	117	1.5	2.5	.00	.00
14	32	.00	.00	.00	.10	29	8.1	83	4.0	2.0	.00	.00
15	18	.00	.00	.00	.10	19	7.1	85	414	1.5	.00	.00
16	17	.00	.00	.00	.10	16	7.8	35	233	1.0	.00	.00
17	17	.00	.00	.00	.12	34	8.1	21	118	.80	.00	.00
18	16	.00	.00	.00	.14	32	7.5	16	54	.60	.00	.00
19	16	.00	.00	.00	.12	24	7.5	11	33	.50	.00	.00
20	15	.00	.00	.00	.10	18	7.1	9.3	70	.42	.00	.00
21	15	.00	.00	.00	.20	16	6.8	8.4	199	.35	.00	.00
22	9.0	.00	.00	.00	.30	15	7.3	7.1	549	.30	.00	.00
23	6.4	.00	.00	.00	.40	12	7.8	6.4	209	.25	.00	.00
24	4.1	.00	.00	.00	.54	11	9.6	5.9	80	.20	.00	.00
25	2.5	.00	.00	.00	.60	11	9.0	5.4	53	.10	.00	.00
26	1.6	.00	.00	.00	.70	11	8.4	4.7	36	.00	.00	.00
27	1.0	.00	.00	.00	.80	11	5.6	3.9	30	.00	.00	.00
28	.43	.00	.00	.00	1.0	14	9.9	4.1	21	.00	.00	.00
29	.14	.00	.00	.00	---	27	5.6	3.2	18	.00	.00	.00
30	.07	.00	.00	.00	---	64	5.1	2.3	16	.00	.00	.00
31	.08	---	.00	.00	---	31	---	2.3	---	.00	.00	---
TOTAL	1185.32	.18	.00	.00	5.57	692.2	352.2	960.1	2160.8	99.52	.00	.00
MEAN	38.2	.006	.000	.000	.20	22.3	11.7	31.0	72.0	3.21	.000	.000
MAX	685	.10	.00	.00	1.0	100	27	402	549	14	.00	.00
MIN	.00	.00	.00	.00	.00	1.2	5.1	2.3	1.0	.00	.00	.00
AC-FT	2350	.4	.00	.00	11	1370	699	1900	4290	197	.00	.00

CAL YR 1982 TOTAL 6828.31 MEAN 18.7 MAX 685 MIN .00 AC-FT 13540
WTR YR 1983 TOTAL 5455.89 MEAN 14.9 MAX 685 MIN .00 AC-FT 10820

06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43°15'17", long 102°49'29", in SW¼NE¼ sec.24, T.38 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on right bank at downstream side of bridge, 3.0 mi downstream from Blacktail Creek and 7.0 mi northwest of Oglala.

DRAINAGE AREA.--2,200 mi^2, approximately.

PERIOD OF RECORD.--May 1943 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,853.54 ft National Geodetic Vertical Datum of 1929. Prior to May 6, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Some diversions for irrigation above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--40 years, 53.1 ft^3/s (38,470 acre-ft/yr); median of yearly mean discharges, 45 ft^3/s (32,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,200 ft^3/s June 21, 1947 (gage height, 23.50 ft), from rating curve extended above 2,800 ft^3/s on basis of velocity-area studies; maximum gage height, 23.61 ft June 16, 1967; no flow at times in 1952, 1954, 1957, 1961, 1964, 1965, 1970-76, 1981, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 938 ft^3/s at 1000 hours, May 19 (gage height, 14.42 ft), no other peak above base of 800 ft^3/s; minimum daily, 0.70 ft^3/s Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	20	26	18	25	55	296	101	83	77	48	14
2	.70	26	25	18	24	53	258	285	79	77	40	13
3	13	47	25	18	22	56	163	647	78	81	40	9.6
4	18	64	27	19	25	53	121	442	76	66	40	7.7
5	9.4	43	28	21	35	43	91	265	77	56	37	6.2
6	15	37	26	22	50	46	77	189	77	52	36	5.2
7	25	34	22	22	75	54	76	160	77	49	34	6.3
8	14	35	15	22	70	57	80	138	83	46	28	6.4
9	39	29	17	22	68	67	85	126	81	45	25	5.4
10	177	27	18	21	55	68	88	113	78	33	32	8.8
11	240	27	17	22	53	58	85	129	72	29	26	6.3
12	172	23	18	25	58	67	84	229	72	27	20	5.3
13	266	25	20	27	71	86	73	494	73	23	21	6.5
14	155	25	22	27	134	86	71	707	64	20	16	6.3
15	75	20	20	27	96	109	74	445	64	19	13	6.3
16	47	16	20	26	142	108	70	298	63	19	12	6.3
17	32	23	22	25	124	82	91	240	69	82	11	6.4
18	24	21	22	23	112	63	132	514	84	35	11	6.4
19	20	21	20	23	113	58	132	905	109	32	61	6.7
20	17	25	21	23	111	55	118	784	310	32	21	5.8
21	18	21	22	23	106	50	92	600	278	34	13	5.5
22	16	22	22	23	100	48	77	480	198	35	9.3	6.1
23	16	22	21	23	94	50	70	315	148	57	21	5.9
24	16	22	21	22	88	51	53	247	130	123	19	5.2
25	20	23	19	20	86	60	43	185	106	128	14	7.5
26	37	24	18	20	73	72	44	152	92	134	13	5.4
27	30	22	18	24	70	84	41	130	84	72	10	4.0
28	27	22	16	26	55	91	36	114	79	51	9.4	3.6
29	26	24	17	28	---	88	38	104	78	48	12	4.4
30	24	27	17	26	---	144	42	95	76	48	19	4.6
31	19	---	18	25	---	235	---	90	---	76	16	---
TOTAL	1609.50	817	640	711	2135	2297	2801	9723	3038	1706	727.7	197.1
MEAN	51.9	27.2	20.6	22.9	76.3	74.1	93.4	314	101	55.0	23.5	6.57
MAX	266	64	28	28	142	235	296	905	310	134	61	14
MIN	.70	16	15	18	22	43	36	90	63	19	9.3	3.6
AC-FT	3190	1620	1270	1410	4230	4560	5560	19290	6030	3380	1440	391

CAL YR 1982 TOTAL 21099.85 MEAN 57.8 MAX 1030 MIN .00 AC-FT 41850
WTR YR 1983 TOTAL 26402.30 MEAN 72.3 MAX 905 MIN .70 AC-FT 52370

06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43°45'09", long 101°31'28", in SE¼SE¼ sec.30, T.3 S., R.22 E., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, near center of span on downstream side of bridge on State Highway 73, 5.0 mi upstream from Pass Creek, 5.5 mi downstream from Cottonwood Creek, and 5.8 mi south of Kadoka.

DRAINAGE AREA.--5,000 mi², approximately.

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 1279: 1944(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 2,122.18 ft National Geodetic Vertical Datum of 1929. Prior to June 14, 1949, nonrecording gage, and June 14, 1949, to Mar. 8, 1955, water-stage recorder at site 0.3 mi downstream at same datum. Mar. 9, 1955, to May 17, 1957, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, Nov. 25 to Feb. 21, which are poor. Some diversions above station for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 278 ft³/s (201,400 acre-ft/yr); median of yearly mean discharges, 270 ft³/s (196,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft³/s June 7, 1951 (gage height, 13.83 ft), site then in use, from rating curve extended above 16,000 ft³/s; maximum gage height, 16.18 ft May 20, 1982; no flow at times in many years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1942, reached a stage of 16.24 ft, from floodmarks (discharge, about 32,000 ft³/s, from rating curve extended above 16,000 ft³/s). Floods of Mar. 8, 1905, and in spring of 1927 were 1 or 2 ft higher than flood of June 4, 1942, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	0600	8740	11.26	May 12	1200	5910	9.94
May 1	1800	13000	12.99	June 20	2400	3880	8.72
May 8	0900	*13100	*13.01	June 26	1800	4330	9.02

Minimum daily discharge, 30 ft³/s Aug. 20-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	337	71	48	45	65	126	295	9060	154	340	702	60
2	624	133	45	48	60	123	220	8210	145	244	360	58
3	670	266	45	50	60	115	230	2320	126	200	217	52
4	304	304	47	50	55	110	295	954	126	160	154	52
5	187	133	50	53	55	482	313	676	128	140	148	60
6	184	62	45	55	55	1060	282	774	131	120	176	65
7	110	49	40	55	60	650	257	2620	187	100	180	63
8	110	93	40	54	80	322	278	8770	139	90	151	52
9	2550	71	35	54	90	244	220	1870	126	80	83	51
10	7310	77	35	53	80	163	180	794	120	75	66	48
11	2980	70	37	54	70	136	157	456	101	70	57	50
12	1060	65	37	60	70	130	190	3770	95	65	41	68
13	543	65	39	65	70	120	209	3540	118	70	202	46
14	360	60	39	60	80	110	213	1880	120	65	105	42
15	265	65	41	60	180	103	446	1180	128	55	86	38
16	253	73	41	60	220	110	709	761	126	50	66	34
17	240	52	43	61	200	185	575	748	142	50	58	36
18	160	79	43	60	180	103	450	543	988	101	55	37
19	160	83	45	55	170	115	313	599	1020	466	37	38
20	136	79	45	55	150	100	253	467	2160	350	30	34
21	93	55	46	56	140	88	210	350	2300	115	30	37
22	79	38	48	58	136	95	180	305	1320	75	30	38
23	71	38	50	60	126	108	150	690	670	274	1410	38
24	66	36	48	60	120	88	135	605	395	165	586	38
25	66	38	45	57	128	79	130	490	274	329	232	38
26	60	40	45	55	126	88	130	379	1370	217	126	38
27	68	40	43	60	136	100	125	313	791	160	90	38
28	79	42	43	65	115	537	120	286	331	131	85	38
29	73	43	43	70	---	1130	209	250	416	103	81	38
30	60	45	43	65	---	856	377	230	322	732	84	38
31	73	---	45	65	---	519	---	190	---	1520	68	---
TOTAL	19331	2365	1339	1778	3077	8295	7851	54080	14569	6712	5796	1363
MEAN	624	78.8	43.2	57.4	110	268	262	1745	486	217	187	45.4
MAX	7310	304	50	70	220	1130	709	9060	2300	1520	1410	68
MIN	60	36	35	45	55	79	120	190	95	50	30	34
AC-FT	38340	4690	2660	3530	6100	16450	15570	107300	28900	13310	11500	2700

CAL YR 1982 TOTAL 197102.90 MEAN 540 MAX 14700 MIN .00 AC-FT 391000
WTR YR 1983 TOTAL 126556.00 MEAN 347 MAX 9060 MIN 30 AC-FT 251000

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD

LOCATION.--Lat 43°10'00", long 101°37'47", in NW¼ sec.19, T.37 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on right bank 70 ft downstream from highway culvert and 5.4 mi east of Martin.

DRAINAGE AREA.--310 mi², approximately, of which about 230 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year. Prior to October 1965, published as South Fork White River near Martin.

GAGE.--Water-stage recorder. Altitude of gage is 3,045 ft, by barometer. Prior to Aug. 14, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Nov. 11 to Feb. 21, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--23 years, 19.3 ft³/s (13,980 acre-ft/yr); median of yearly mean discharges, 18 ft³/s (13,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,190 ft³/s July 19, 1965 (gage height, 12.90 ft), from rating curve extended above 340 ft³/s on basis of computation of peak flow through culvert and flow-over-road measurement of peak flow; maximum gage height, 13.21 ft Mar. 11, 1966 (backwater from ice); minimum daily discharge, 0.6 ft³/s Aug. 14, 16, 18, 1940; no flow for part of each day Oct. 19, 20, 22, 1962 (regulation caused by construction work above station).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 5, 1932, reached a stage of 13.3 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 5	0215	137	4.70	Aug. 1	0800	*1020	*12.10

Minimum daily discharge, 9.2 ft³/s Oct. 1, July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	15	13	10	16	29	45	38	19	22	916	20
2	9.3	16	12	11	15	27	40	87	18	20	615	20
3	10	15	11	11	15	26	32	102	18	18	399	20
4	11	16	12	12	14	25	30	120	18	17	279	20
5	12	20	13	12	14	26	29	125	17	15	179	20
6	12	26	12	12	13	27	29	68	17	14	125	20
7	12	25	10	13	13	30	29	47	17	13	115	20
8	12	23	10	13	15	28	30	48	16	12	56	20
9	11	22	11	13	17	31	30	45	15	11	41	20
10	12	22	12	14	18	30	29	47	15	11	34	20
11	16	20	12	14	20	28	27	49	14	11	29	20
12	26	20	11	15	20	27	26	54	13	10	25	20
13	27	21	12	17	22	25	27	80	14	10	24	19
14	28	17	12	16	24	24	25	88	14	10	20	18
15	21	17	13	14	23	23	26	94	13	10	19	17
16	19	18	13	14	23	22	31	88	13	11	18	16
17	17	18	14	15	24	22	37	61	13	10	18	16
18	15	19	16	15	25	22	38	50	14	9.5	18	15
19	14	17	15	14	27	21	33	52	14	9.5	17	16
20	15	16	15	14	30	20	30	51	15	9.5	17	16
21	15	15	16	15	35	22	28	49	13	9.2	17	16
22	16	12	17	16	36	24	25	47	13	9.7	19	16
23	16	10	14	15	37	22	24	40	13	12	17	16
24	16	10	11	15	32	21	23	34	12	16	17	17
25	16	11	11	14	34	23	22	30	11	16	19	17
26	14	11	10	14	29	25	21	28	11	16	20	17
27	15	11	10	15	29	27	20	26	12	14	20	17
28	16	12	10	17	29	26	20	24	13	15	21	17
29	17	12	9.5	18	---	27	21	22	17	18	21	17
30	17	12	9.5	17	---	40	22	20	24	82	21	17
31	15	---	10	17	---	44	---	19	---	319	21	---
TOTAL	481.5	499	377.0	442	649	814	849	1733	446	780.4	3177	540
MEAN	15.5	16.6	12.2	14.3	23.2	26.3	28.3	55.9	14.9	25.2	102	18.0
MAX	28	26	17	18	37	44	45	125	24	319	916	20
MIN	9.2	10	9.5	10	13	20	20	19	11	9.2	17	15
AC-FT	955	990	748	877	1290	1610	1680	3440	885	1550	6300	1070

CAL YR 1982 TOTAL 7009.4 MEAN 19.2 MAX 144 MIN 3.2 AC-FT 13900
WTR YR 1983 TOTAL 10787.9 MEAN 29.6 MAX 916 MIN 9.2 AC-FT 21400

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°08'46", long 101°30'38", in SW¼ sec.30, T.37 N., R.35 W., Bennett County, Hydrologic Unit 10140203, on left bank 400 ft downstream from east boundary of LaCreek game refuge, 1.2 mi southwest of Tuthill and 5.5 mi upstream from mouth.

DRAINAGE AREA.--120 mi^2, approximately, of which about 60 mi^2 probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,055 ft (by barometer). Prior to Aug. 4, 1938, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated by series of dams above gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--23 years, 15.8 ft^3/s (11,450 acre-ft/yr); median of yearly mean discharges, 16 ft^3/s (11,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 178 ft^3/s June 18, 1967 (gage height, 5.17 ft); maximum gage height, 5.67 ft Mar. 28, 1975 (backwater from ice); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 108 ft^3/s at 1745 hours, May 20 (gage height, 4.16 ft); no flow Apr. 13-21, July 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	2.4	8.4	22	20	59	46	7.7	55	9.7	16	12
2	.96	3.5	9.1	22	18	55	45	8.2	53	8.8	13	11
3	.58	1.5	7.1	22	18	52	44	9.1	51	8.2	9.3	11
4	.77	1.1	8.4	22	17	50	44	9.3	49	6.1	6.1	13
5	1.1	1.0	8.5	21	17	52	44	11	46	3.0	4.8	12
6	1.3	.97	9.1	21	18	54	45	11	44	2.2	2.9	11
7	.59	.96	11	21	18	27	44	13	41	1.2	2.0	10
8	1.5	.48	11	22	15	23	43	16	37	.70	1.2	9.5
9	4.2	.51	12	22	12	32	43	23	35	.60	.75	9.5
10	3.2	.68	14	21	13	19	42	25	32	1.4	.45	7.6
11	1.6	1.3	15	21	15	19	42	34	30	.50	.20	7.8
12	1.8	.66	17	22	17	19	21	63	30	.35	.70	5.4
13	1.8	.63	18	22	17	19	.00	64	26	.20	1.3	6.1
14	2.6	.73	18	27	17	20	.00	65	25	.45	.81	6.6
15	2.5	.80	20	25	16	20	.00	73	20	.65	.81	10
16	2.4	.88	21	26	17	20	.00	77	18	.45	.87	7.3
17	2.8	1.0	21	26	17	20	.00	83	20	1.6	.65	8.1
18	3.5	1.1	22	26	17	21	.00	95	21	.05	2.4	6.3
19	4.6	1.4	22	25	17	21	.00	100	22	.00	1.7	6.2
20	2.2	1.7	21	25	15	21	.00	103	21	.00	1.0	11
21	1.6	1.8	22	24	17	21	.00	103	23	.70	.87	8.7
22	1.9	1.6	22	24	18	25	.08	100	18	.50	2.4	6.2
23	2.0	1.9	22	23	18	28	.55	98	15	.01	6.7	7.0
24	2.0	2.2	22	23	31	28	.81	92	13	.20	11	7.5
25	2.6	2.6	22	22	72	28	1.4	90	13	1.1	13	8.8
26	2.8	2.9	22	23	70	28	1.5	91	19	.65	14	9.1
27	3.2	3.4	22	23	67	28	2.9	82	17	2.0	15	9.9
28	4.5	3.7	22	24	63	27	3.5	75	15	.70	16	8.4
29	1.8	5.9	22	25	---	28	4.4	66	14	3.4	15	8.3
30	1.8	7.8	22	24	---	37	5.9	60	11	19	13	11
31	2.1	---	22	24	---	47	---	57	---	19	13	---
TOTAL	66.77	57.10	535.6	720	687	948	524.04	1804.3	834	93.41	186.91	266.3
MEAN	2.15	1.90	17.3	23.2	24.5	30.6	17.5	58.2	27.8	3.01	6.03	8.88
MAX	4.6	7.8	22	27	72	59	46	103	55	19	16	13
MIN	.47	.48	7.1	21	12	19	.00	7.7	11	.00	.20	5.4
AC-FT	132	113	1060	1430	1360	1880	1040	3580	1650	185	371	528

CAL YR 1982 TOTAL 7406.10 MEAN 20.3 MAX 94 MIN .03 AC-FT 14690
WTR YR 1983 TOTAL 6723.43 MEAN 18.4 MAX 103 MIN .00 AC-FT 13340

06449100 LITTLE WHITE RIVER NEAR VETAL, SD

LOCATION.--Lat 43°06'03", long 101°13'49", in NE¼NW¼ sec.17, T.36 N., R.33 W., Bennett County, Hydrologic Unit 10140203, on left bank 120 ft downstream from highway bridge, 0.3 mi downstream from small right-bank tributary, 10.8 mi southeast of Vetal, and 15.3 mi upstream from Spring Creek.

DRAINAGE AREA.--590 mi², approximately, of which about 415 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--August 1959 to current year. Prior to October 1965, published as South Fork White River near Vetal.

GAGE.--Water-stage recorder. Datum of gage is 2,780.69 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, Nov. 15-17, Nov. 20 to Jan. 26, and Feb. 2-9, which are poor. Some small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--24 years, 53.1 ft³/s (38,470 acre-ft/yr); median of yearly mean discharges, 53 ft³/s (38,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft³/s Mar. 13, 1966 (gage height, 7.75 ft); minimum daily, 9.0 ft³/s Dec. 24, 25, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 2	2315	229	4.88	Aug. 3	2030	*794	*6.94
May 18	0815	246	4.96				

Minimum daily discharge, 15 ft³/s July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	39	30	33	42	104	103	153	102	46	59	38
2	28	42	28	33	40	103	103	206	100	46	74	38
3	28	42	27	32	38	99	104	174	100	47	522	36
4	27	29	28	33	38	94	103	133	94	48	662	36
5	27	38	32	35	36	94	106	111	91	48	499	37
6	29	51	30	37	35	96	104	106	86	44	381	35
7	30	45	25	37	37	90	103	118	86	41	281	33
8	30	43	24	36	40	62	103	123	81	41	190	33
9	44	44	27	37	40	52	100	104	77	38	155	32
10	51	42	30	38	38	67	99	112	79	48	109	30
11	45	44	28	38	38	68	97	130	72	51	85	30
12	37	36	28	40	38	67	97	155	70	47	77	27
13	41	38	35	46	44	65	85	180	70	41	97	29
14	64	30	35	45	47	64	51	202	62	36	83	28
15	51	30	33	40	45	63	61	184	56	23	72	29
16	49	32	40	40	44	62	56	186	49	19	80	30
17	42	32	50	40	45	61	57	204	43	21	90	30
18	38	34	60	38	47	62	57	233	45	19	80	30
19	41	29	57	39	52	63	52	210	46	16	70	30
20	30	28	55	40	54	61	52	200	46	16	60	27
21	28	27	57	42	52	64	54	196	49	15	56	31
22	51	26	60	41	61	64	58	188	49	21	54	35
23	45	25	65	40	63	65	58	174	45	23	51	32
24	42	26	50	39	65	69	52	164	40	22	47	32
25	38	27	40	38	67	73	55	159	37	22	48	33
26	40	26	35	40	94	73	56	155	45	23	48	34
27	42	26	37	47	106	70	52	153	51	25	48	37
28	43	27	37	54	106	75	54	148	47	23	47	37
29	46	27	35	51	---	85	55	139	47	25	45	36
30	45	28	32	45	---	86	65	122	48	46	44	38
31	40	---	32	44	---	89	---	112	---	59	42	---
TOTAL	1220	1013	1182	1238	1452	2310	2252	4934	1913	1040	4256	983
MEAN	39.4	33.8	38.1	39.9	51.9	74.5	75.1	159	63.8	33.5	137	32.8
MAX	64	51	65	54	106	104	106	233	102	59	662	38
MIN	27	25	24	32	35	52	51	104	37	15	42	27
AC-FT	2420	2010	2340	2460	2880	4580	4470	9790	3790	2060	8440	1950

CAL YR 1982 TOTAL 21704 MEAN 59.5 MAX 250 MIN 19 AC-FT 43050
WTR YR 1983 TOTAL 23793 MEAN 65.2 MAX 662 MIN 15 AC-FT 47190

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD

LOCATION.--Lat 43°15'47", long 100°55'02", in NW¼SE¼ sec.18, T.38 N., R.30 W., Todd County, Hydrologic Unit 10140203, on right bank at downstream side of Lampert bridge, on BIA highway in Crazy Horse Canyon, at Ghost Hawk Park, 3.1 mi upstream from Rosebud Creek, and 4.6 mi northwest of Rosebud.

DRAINAGE AREA.--890 mi², approximately.

PERIOD OF RECORD.--October 1981 to September 1982.

GAGE.--Water-stage recorder. Altitude of gage is 2,415 ft, from topographic map.

REMARKS.--Records good except those for winter periods, Dec. 1-4 and Dec. 10 to Mar. 5, which are poor. Some small diversions for irrigation and some storage in several small lakes above station. Water-quality records were published in SD-82-1.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 480 ft³/s at 1530 hours, Feb. 18 (gage height, 4.86 ft), backwater from ice, no other peak above base of 300 ft³/s; minimum daily discharge, 35 ft³/s Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	65	80	45	45	120	100	60	166	170	82	108
2	73	66	80	45	50	100	95	71	161	200	81	87
3	80	76	75	45	55	110	100	85	163	230	81	50
4	86	86	75	42	60	130	100	97	173	220	75	45
5	80	80	83	42	55	150	100	95	180	220	77	50
6	78	77	78	40	55	137	110	66	180	180	80	54
7	75	78	80	38	50	130	113	60	183	158	78	54
8	61	89	80	36	45	127	110	84	180	149	78	69
9	61	83	82	35	50	130	110	93	177	164	73	84
10	71	73	75	45	55	131	110	109	180	144	73	84
11	71	71	80	60	70	140	108	104	177	157	73	78
12	105	71	85	70	90	150	110	85	173	140	71	80
13	79	83	80	60	130	140	107	116	173	141	71	74
14	79	86	75	58	200	140	104	209	170	164	68	71
15	80	86	70	55	250	130	110	237	164	156	67	71
16	85	100	60	52	300	120	116	241	161	152	63	73
17	85	78	65	50	400	130	106	223	161	127	56	73
18	80	75	70	45	450	150	93	168	154	139	93	77
19	80	78	65	45	400	140	88	176	148	149	87	86
20	85	80	65	45	300	150	92	247	148	136	73	89
21	85	78	60	50	250	180	90	269	148	122	64	89
22	80	78	60	60	200	170	87	259	148	113	63	87
23	85	78	55	65	200	160	80	222	145	109	60	80
24	80	78	55	70	190	120	79	243	154	102	57	75
25	75	80	55	65	170	130	95	264	170	100	54	85
26	80	80	55	65	150	110	80	264	170	102	58	90
27	75	79	50	60	120	110	65	232	164	105	47	90
28	72	75	50	55	110	100	65	210	164	105	44	94
29	67	73	50	50	---	120	65	191	161	101	44	90
30	72	85	50	45	---	110	59	210	161	91	68	90
31	65	---	45	45	---	100	---	197	---	82	109	---
TOTAL	2407	2365	2088	1583	4500	4065	2847	5187	4957	4428	2168	2327
MEAN	77.6	78.8	67.4	51.1	161	131	94.9	167	165	143	69.9	77.6
MAX	105	100	85	70	450	180	116	269	183	230	109	108
MIN	61	65	45	35	45	100	59	60	145	82	44	45
AC-FT	4770	4690	4140	3140	8930	8060	5650	10290	9830	8780	4300	4620

WTR YR 1982 TOTAL 38922 MEAN 107 MAX 450 MIN 35 AC-FT 77200

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD

LOCATION.--Lat 43°15'47", long 100°55'02", in NW¼SE¼ sec.18, T.38 N., R.30 W., Todd County, Hydrologic Unit 10140203, on right bank at downstream side of Lampert bridge, on BIA highway in Crazy Horse Canyon, at Ghost Hawk Park, 3.1 mi upstream from Rosebud Creek, and 4.6 mi northwest of Rosebud.

DRAINAGE AREA.--890 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,415 ft, from topographic map.

REMARKS.--Records good except those for winter periods, Nov. 21 to Dec. 19, Dec. 27 to Feb. 11, and Feb. 13-21, which are poor. Some small diversions for irrigation and some storage in several small lakes above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft^3/s Aug. 4, 1983 (gage height, 3.51 ft); minimum daily, 35 ft^3/s Jan. 9, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 3	1230	450	2.42	May 26	1300	307	2.17
May 14	1645	326	2.18	Aug. 4	1115	*900	*3.51
May 18	1700	345	2.22				

Minimum daily discharge, 47 ft^3/s Dec. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	97	85	60	90	170	149	314	163	143	130	69
2	65	93	85	65	90	173	147	418	156	139	130	68
3	65	84	80	70	80	167	151	405	160	137	132	67
4	65	81	80	70	70	159	149	280	178	122	650	71
5	67	71	80	75	60	161	157	224	140	113	555	70
6	65	79	75	80	65	172	157	217	140	123	414	70
7	70	92	75	80	65	162	160	197	159	115	316	65
8	80	86	70	80	70	161	162	223	166	111	228	69
9	130	85	70	75	80	135	161	227	162	110	209	67
10	160	83	70	75	85	109	157	215	167	97	200	65
11	120	87	75	80	80	115	156	253	174	99	152	62
12	100	84	75	90	85	124	150	307	166	106	125	62
13	85	74	75	95	90	135	149	304	149	100	113	60
14	90	89	80	90	95	127	152	303	147	94	120	62
15	100	69	80	80	95	142	164	290	144	86	126	71
16	90	85	80	80	90	130	140	276	148	89	113	66
17	90	85	85	80	90	128	124	288	164	89	108	66
18	85	78	90	83	95	125	129	321	159	94	124	65
19	90	90	95	85	100	121	129	320	164	86	109	66
20	97	87	90	90	105	118	134	296	164	79	95	66
21	92	65	138	100	110	119	143	292	168	74	87	53
22	95	80	148	105	118	112	146	287	144	90	84	48
23	102	70	127	100	128	113	116	261	147	84	82	51
24	104	65	127	100	127	114	121	259	136	89	80	59
25	105	70	78	95	130	116	123	247	125	97	76	85
26	115	75	47	90	130	115	145	268	129	99	75	84
27	118	80	50	100	155	127	122	240	120	109	74	85
28	108	90	50	105	167	137	118	220	101	121	76	85
29	90	85	55	110	---	128	113	201	94	110	72	82
30	99	85	55	105	---	130	128	185	111	124	70	87
31	101	---	60	100	---	147	---	172	---	124	72	---
TOTAL	2908	2464	2530	2693	2745	4192	4252	8310	4445	3253	4997	2046
MEAN	93.8	82.1	81.6	86.9	98.0	135	142	268	148	105	161	68.2
MAX	160	97	148	110	167	173	164	418	178	143	650	87
MIN	65	65	47	60	60	109	113	172	94	74	70	48
AC-FT	5770	4890	5020	5340	5440	8310	8430	16480	8820	6450	9910	4060

CAL YR 1982 TOTAL 39964 MEAN 109 MAX 450 MIN 35 AC-FT 79270
WTR YR 1983 TOTAL 44835 MEAN 123 MAX 650 MIN 47 AC-FT 88930

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Oct. 1, 1981, to current year.

REMARKS.--Monthly samples of common inorganic constituents collected.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT									
20...	1100	97	270	7.7	4.5	--	--	--	--
NOV									
09...	1250	85	310	9.4	5.5	--	--	--	--
DEC									
21...	1130	128	450	8.2	2.5	--	--	--	--
JAN									
18...	1130	83	340	7.6	.0	--	--	--	--
FEB									
23...	0905	125	260	7.9	5.0	--	--	--	--
MAR									
23...	1000	116	310	7.9	2.5	--	--	--	--
APR									
20...	0910	132	320	--	11.5	--	--	--	--
27...	0945	132	317	8.2	11.5	--	--	--	--
MAY									
18...	1040	326	380	7.9	9.0	--	--	--	--
JUN									
15...	0815	132	380	8.5	16.5	--	--	--	--
JUL									
13...	1000	101	470	9.2	24.5	--	--	--	--
AUG									
24...	0950	91	350	8.2	24.0	--	--	--	--

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT									
20...	--	--	--	--	130	--	--	--	--
NOV									
09...	--	--	--	--	136	--	--	--	--
DEC									
21...	--	--	--	--	147	--	--	--	--
JAN									
18...	--	--	--	--	181	--	--	--	--
FEB									
23...	--	--	--	--	136	--	--	--	--
MAR									
23...	--	--	--	--	154	--	--	--	--
APR									
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	162	--	--	--	--
MAY									
18...	--	--	--	--	178	--	--	--	--
JUN									
15...	--	--	--	--	184	--	--	--	--
JUL									
13...	--	--	--	--	170	--	--	--	--
AUG									
24...	--	--	--	--	169	--	--	--	--

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
OCT											
20...	1100	97	270	7.7	4.5	37	--	.020	.600	.230	1
NOV											
09...	1250	85	310	9.4	5.5	15	83	<.020	.700	.190	1
DEC											
21...	1130	128	450	8.2	2.5	16	94	.020	.600	.310	<1
JAN											
18...	1130	83	340	7.6	.0	14	K10	<.020	.700	.310	1
FEB											
23...	0905	125	260	7.9	5.0	45	K12	.020	.500	.320	<1
MAR											
23...	1000	116	310	7.9	2.5	30	K34	.020	.500	.250	1
APR											
20...	0910	132	320	--	11.5	--	--	--	--	--	--
27...	0945	132	317	8.2	11.5	37	--	<.020	.400	.210	1
MAY											
18...	1040	326	380	7.9	9.0	33	360	.020	.200	.320	<1
JUN											
15...	0815	132	380	8.5	16.5	33	K1900	.040	.500	.410	1
JUL											
13...	1000	101	470	9.2	24.5	27	160	.030	.300	.290	1
AUG											
24...	0950	91	350	8.2	24.0	33	1100	.020	.200	.360	<1

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)
OCT								
20...	--	--	--	--	.230	--	--	--
NOV								
09...	--	--	--	--	.190	--	--	--
DEC								
21...	--	--	--	--	.310	--	--	--
JAN								
18...	--	--	--	--	.310	--	--	--
FEB								
23...	--	--	--	--	.320	--	--	--
MAR								
23...	--	--	--	--	.250	--	--	--
APR								
20...	--	--	--	--	--	--	--	--
27...	--	--	--	--	.210	--	--	--
MAY								
18...	--	--	--	--	.320	--	--	--
JUN								
15...	--	--	--	--	.410	--	--	--
JUL								
13...	--	--	--	--	.290	--	--	--
AUG								
24...	--	--	--	--	.360	--	--	--

< Less than.
K Non-ideal colony count.

06449400 ROSEBUD CREEK AT ROSEBUD, SD

LOCATION.--Lat 43°14'14", long 100°51'26", in SW¼SW¼NE¼ sec.27, T.38 N., R.30 W., Todd County, Hydrologic Unit 10140203, on left bank 40 ft upstream from bridge on Spotted Tail Lane in town of Rosebud, 0.4 mi downstream from small right bank tributary, and 1.0 mi downstream from Spotted Tail Dam.

DRAINAGE AREA.--50.8 mi^2, approximately.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,531.91 ft National Geodetic Vertical Datum of 1929. October 1963 to September 1970, low-flow partial-record station 0.26 mi upstream at different datum.

REMARKS.--Records poor. Flow regulated by Spotted Tail Dam and Indian Scout Lake, combined capacity, about 50 acre-ft, and some small diversions for irrigation of Spotted Tail Golf Course above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--9 years, 7.29 ft^3/s (5,280 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 643 ft^3/s July 27, 1976 (gage height, 10.34 ft); no flow Apr. 21, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 19 ft^3/s May 1; maximum gage height, 7.49 ft Mar. 26 (backwater from beaver dam); minimum daily discharge, 4.6 ft^3/s July 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	7.8	8.5	5.5	5.5	7.5	8.5	19	10	7.5	5.2	5.0
2	11	8.0	8.5	5.5	5.5	8.0	8.5	15	10	7.5	5.0	5.0
3	10	8.0	8.0	5.5	5.3	8.5	8.0	12	10	7.0	5.0	5.2
4	10	8.0	8.5	5.5	5.3	8.0	8.0	11	9.5	6.5	5.0	5.3
5	9.5	8.2	8.5	6.0	5.2	8.0	8.0	10	9.5	6.4	5.0	5.3
6	9.5	8.2	7.5	6.0	5.0	8.0	8.5	10	9.5	6.4	5.0	5.2
7	9.0	8.4	7.0	6.0	5.0	8.0	8.5	9.5	9.0	6.4	4.8	5.0
8	9.0	8.4	6.5	6.0	5.2	7.5	9.0	9.5	9.0	6.0	4.8	5.0
9	8.5	8.4	6.5	6.0	5.4	7.5	9.0	10	6.5	6.0	4.8	5.3
10	8.5	8.1	7.0	5.7	5.6	7.5	9.0	13	8.5	5.5	4.8	5.5
11	8.0	8.7	7.0	5.7	5.8	8.0	8.5	16	8.0	5.3	5.0	5.5
12	8.0	8.1	7.0	5.7	5.8	8.0	8.5	17	8.0	5.0	5.0	5.3
13	8.0	8.1	7.5	6.0	6.0	8.5	8.5	15	9.5	4.9	5.3	5.3
14	8.0	7.8	7.5	6.5	6.5	8.0	8.5	15	8.5	5.0	5.0	5.1
15	8.5	8.7	7.5	6.0	6.0	7.5	8.3	14	7.8	5.0	5.0	5.1
16	8.5	8.4	7.5	6.0	6.0	7.5	8.3	14	7.8	4.8	5.0	5.0
17	8.0	9.5	7.5	6.0	6.5	7.5	8.3	15	7.5	4.8	5.2	5.0
18	8.0	8.4	8.0	6.0	7.0	7.0	8.0	14	7.5	4.8	5.5	5.0
19	8.0	9.0	8.0	5.5	7.5	7.0	8.0	14	7.5	4.6	5.7	5.0
20	7.8	8.5	6.0	5.5	7.0	6.5	7.9	14	7.0	4.6	5.7	5.0
21	7.8	8.0	8.0	5.7	6.5	6.5	8.0	14	7.0	4.8	5.5	5.1
22	8.0	7.5	7.2	6.0	6.5	7.0	7.7	13	7.5	5.0	5.4	5.3
23	8.1	7.0	7.5	6.0	7.0	7.5	7.5	13	7.8	5.5	5.4	5.5
24	8.2	7.0	6.0	6.0	7.5	7.5	7.5	13	7.5	5.3	5.4	5.5
25	8.0	7.5	7.0	5.8	7.0	7.5	7.0	13	7.0	5.0	5.4	6.0
26	8.2	7.5	6.0	5.6	7.0	7.5	7.0	12	7.0	5.0	5.4	6.5
27	8.0	7.5	5.5	5.6	7.5	8.0	7.5	12	7.5	5.0	5.2	7.0
28	7.8	8.0	5.0	6.0	7.0	8.0	7.5	11	7.5	5.2	5.2	7.0
29	8.0	8.0	5.0	6.3	---	8.0	8.0	11	7.0	5.2	5.1	7.0
30	8.2	8.0	5.0	5.8	---	8.0	10	11	7.0	5.5	5.1	6.5
31	8.0	---	5.0	5.6	---	8.5	---	11	---	5.3	5.0	---
TOTAL	267.1	242.7	221.2	181.0	173.1	238.0	245.5	401.0	245.4	170.8	159.9	164.5
MEAN	8.62	8.09	7.14	5.84	6.18	7.68	8.18	12.9	8.18	5.51	5.16	5.48
MAX	13	9.5	8.5	6.5	7.5	8.5	10	19	10	7.5	5.7	7.0
MIN	7.8	7.0	5.0	5.5	5.0	6.5	7.0	9.5	7.0	4.6	4.8	5.0
AC-FT	530	481	439	359	343	472	487	795	487	339	317	326

CAL YR 1982 TOTAL 2802.44 MEAN 7.68 MAX 23 MIN .00 AC-FT 5560
WTR YR 1983 TOTAL 2710.20 MEAN 7.43 MAX 19 MIN 4.6 AC-FT 5380

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43°19'32", long 100°53'00", in SW¼NW¼ sec.28, T.39 N., R.30 W., Todd County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 18, 0.3 mi downstream from Scabby Creek, 0.7 mi downstream from Soldier Creek, and 6.4 mi north of Rosebud.

DRAINAGE AREA.--1,020 mi², approximately, of which about 760 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--May 1943 to current year. Prior to October 1965, published as South Fork White River near Rosebud.

REVISED RECORDS.--WSP 1056: 1943, drainage area. WSP 1309: 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 2,294.99 ft National Geodetic Vertical Datum of 1929. Prior to May 11, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, Dec. 10-18, Dec. 24 to Jan. 14, and Feb. 6-11, which are fair. Some small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--40 years, 110 ft³/s (79,700 acre-ft/yr); median of yearly mean discharges, 110 ft³/s (79,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,640 ft³/s June 11, 1967 (gage height, 14.09 ft), from rating curve extended above 1,300 ft³/s; minimum daily, 10 ft³/s Jan. 4, 1949, Feb. 20, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 330 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 6	1700	ice jam	a*6.21	May 12	0920	334	5.13
May 2	0925	476	5.54	Aug. 4	1500	*576	5.96

a Maximum observed.
Minimum daily discharge, 55 ft³/s Dec. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	98	95	70	104	176	163	327	184	130	143	90
2	67	98	93	75	95	166	166	462	173	141	140	87
3	68	97	91	80	89	171	178	400	176	158	142	86
4	68	97	91	80	88	168	181	307	202	145	418	90
5	71	97	89	85	65	184	178	258	171	119	482	88
6	73	97	86	90	70	168	178	222	156	128	402	84
7	71	114	79	90	70	158	186	216	151	135	335	78
8	78	100	81	90	80	126	181	222	146	141	271	83
9	140	102	76	85	90	124	178	216	146	135	222	85
10	173	102	80	85	95	133	171	231	231	129	197	86
11	126	106	80	90	95	135	173	300	154	125	151	80
12	108	100	80	100	97	133	171	334	161	134	128	78
13	93	89	85	110	97	137	191	317	208	121	130	78
14	86	88	85	100	106	129	178	327	149	118	138	71
15	112	84	90	89	106	129	142	294	146	111	106	85
16	97	97	90	91	106	126	158	297	131	116	117	80
17	97	98	100	93	106	131	156	300	140	116	118	82
18	89	100	110	95	106	131	144	334	135	122	128	80
19	102	91	112	100	104	133	154	307	126	119	118	77
20	99	91	112	124	122	137	137	297	120	108	101	73
21	89	106	122	133	126	118	135	300	122	102	98	68
22	87	102	140	126	126	129	129	294	124	110	103	75
23	101	74	135	112	135	137	124	284	116	106	108	77
24	102	70	100	116	135	137	124	265	114	101	103	78
25	100	78	80	112	137	148	116	271	128	115	106	89
26	104	86	55	102	133	158	137	262	141	116	99	95
27	100	89	55	110	161	161	126	234	146	129	97	97
28	98	106	60	124	166	149	133	225	142	130	100	96
29	104	95	60	126	---	158	122	219	161	126	98	89
30	102	97	65	126	---	171	163	222	131	129	93	91
31	100	---	70	106	---	171	---	200	---	122	90	---
TOTAL	2972	2849	2747	3115	3010	4532	4673	8744	4511	3857	5080	2496
MEAN	95.9	95.0	88.6	100	108	146	156	282	150	124	164	83.2
MAX	173	114	140	133	166	184	191	462	231	158	482	97
MIN	67	70	55	70	65	118	116	200	114	101	90	68
AC-FT	5890	5650	5450	6180	5970	8990	9270	17340	8950	7650	10080	4950

CAL YR 1982 TOTAL 44156 MEAN 121 MAX 500 MIN 40 AC-FT 87580
WTR YR 1983 TOTAL 48586 MEAN 133 MAX 482 MIN 55 AC-FT 96370

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43°36'04", long 100°44'52", in SW¼NW¼ sec.23, T.42 N., R.29 W., Mellette County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 83, 1.3 mi downstream from Pine Creek and 2.0 mi north of town of White River.

DRAINAGE AREA.--1,570 mi², approximately, of which about 1,310 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1965, published as South Fork White River below White River.

GAGE.--Water-stage recorder. Datum of gage is 1,912.78 ft National Geodetic Vertical Datum of 1929. Prior to June 8, 1968, at site 0.8 mi downstream at datum 4.50 ft lower.

REMARKS.--Records good except those for winter periods, Nov. 25 to Dec. 2 and Dec. 9 to Feb. 20, which are poor. Diurnal fluctuations caused by small powerplant 2.2 mi upstream. Several small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 129 ft³/s (93,460 acre-ft/yr); median of yearly mean discharges, 130 ft³/s (94,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s June 12, 1967 (gage height, 10.02 ft), site and datum then in use; maximum gage height, 11.21 ft June 7, 1968, site and datum then in use; maximum gage height at present site and datum, 15.46 ft June 7, 1968, from floodmarks; no flow for parts of several days in 1952, 1954, 1956; minimum daily discharge, 7 ft³/s July 31, Aug. 31, Sept. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,000 ft³/s, time unknown, May 1 (gage height, 10.40 ft); minimum daily, 48 ft³/s Dec. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	198	100	65	110	139	186	3020	300	182	136	139
2	59	167	100	70	110	170	186	3220	253	186	139	134
3	59	153	99	75	100	174	160	999	236	133	174	133
4	62	160	94	75	95	153	163	468	253	133	272	143
5	64	156	86	80	80	163	202	462	210	124	362	150
6	59	153	91	90	65	160	170	362	232	119	219	146
7	71	139	57	95	70	139	210	341	249	116	164	124
8	86	136	48	95	75	124	170	310	244	127	119	122
9	107	143	90	90	85	116	167	300	262	99	86	132
10	261	139	90	95	100	104	178	300	436	116	76	143
11	316	143	90	95	120	104	174	698	186	94	62	122
12	190	160	90	110	120	116	174	1020	202	119	72	133
13	143	176	95	120	125	107	214	571	232	116	53	124
14	146	124	95	110	130	119	236	571	178	124	69	124
15	153	133	100	100	135	119	170	444	160	113	76	122
16	170	96	110	100	130	130	210	450	143	113	79	127
17	156	100	130	110	130	127	232	402	150	86	81	124
18	160	136	135	110	130	130	198	438	167	124	91	122
19	219	127	140	120	125	143	202	414	136	143	107	102
20	198	79	150	130	135	143	174	411	210	139	94	100
21	139	76	160	140	146	127	136	414	156	143	89	97
22	124	133	170	130	146	124	133	468	186	160	89	86
23	136	94	160	120	163	133	139	362	170	190	94	110
24	139	84	170	125	130	130	139	362	167	119	99	107
25	153	90	150	120	143	139	116	341	160	110	90	104
26	167	100	80	115	167	167	119	346	156	113	69	99
27	130	100	60	125	160	150	139	331	153	127	94	99
28	145	110	55	135	160	136	146	315	219	156	115	102
29	160	110	60	140	---	160	130	310	174	153	127	97
30	163	100	60	130	---	167	156	272	136	199	119	146
31	167	---	65	120	---	163	---	300	---	152	99	---
TOTAL	4364	3761	3180	3335	3385	4276	5129	19022	6116	4128	3615	3615
MEAN	141	125	103	108	121	138	171	614	204	133	117	121
MAX	316	198	170	140	167	174	236	3220	436	199	362	150
MIN	59	76	48	65	65	104	116	272	136	86	53	86
AC-FT	8660	7460	6310	6610	6710	8480	10170	37730	12130	8190	7170	7170

CAL YR 1982 TOTAL 54771 MEAN 150 MAX 1560 MIN 45 AC-FT 108600
WTR YR 1983 TOTAL 63926 MEAN 175 MAX 3220 MIN 48 AC-FT 126800

06452000 WHITE RIVER NEAR OACOMA, SD

LOCATION.--Lat 43°44'54", long 99°33'22", in SE¼SW¼ sec.3, T.103 N., R.73 W., Lyman County, Hydrologic Unit 10140204, on left bank at downstream side of bridge on State Highway 47, 1.5 mi downstream from Wagner Draw, 1.8 mi upstream from high-water line of Lake Francis Case, and 8.8 mi southwest of Oacoma.

DRAINAGE AREA.--10,200 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1309: 1929-30(M).

GAGE.--Water-stage recorder. Datum of gage is 1,377.29 ft National Geodetic Vertical Datum of 1929. See WSP 1709, 1729, or 1917 for history of changes prior to Feb. 27, 1960.

REMARKS.--Records good except those for winter period, Nov. 19 to Feb. 18, which are poor. Some diversions for irrigation above station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--55 years, 551 ft^3/s (384,700 acre-ft/yr); median of yearly mean discharges, 450 ft^3/s (326,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,900 ft^3/s Mar. 30, 1952 (gage height, 15.40 ft), site and datum then in use; maximum gage height, 23.59 ft Mar. 14, 1978 (ice jam); no flow Aug. 14-28, 1971, July 16-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976, July 23 to Aug. 7, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 11	2200	7760	8.45	May 14	0700	15300	11.46
May 4	0600	*20900	*12.57	June 23	0700	6610	8.39
May 10	0100	11900	10.63				

Minimum daily discharge, 54 ft^3/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	155	130	150	200	288	3680	1310	640	1240	347	163
2	125	149	130	160	200	295	2690	12200	575	703	342	147
3	126	142	130	160	190	288	2070	18800	515	450	1070	127
4	127	163	140	170	180	288	1530	16200	469	405	1100	107
5	120	183	150	180	180	320	1040	6330	426	886	682	107
6	496	107	140	180	170	385	817	3450	390	785	557	97
7	588	95	130	170	180	385	710	2250	380	582	661	88
8	453	320	120	170	180	371	682	1580	371	521	569	85
9	627	288	115	170	200	1260	696	2810	334	475	481	79
10	718	254	110	180	230	1240	647	7640	307	347	385	94
11	5160	320	110	200	260	882	601	3490	292	311	342	86
12	6890	324	115	220	250	725	601	4340	504	280	280	78
13	4700	320	120	210	230	614	689	6210	1400	254	254	68
14	2920	270	130	200	230	527	614	11800	1000	219	228	73
15	1550	236	130	200	300	458	627	7160	725	193	202	70
16	1020	209	140	210	450	426	640	4110	668	171	180	68
17	725	202	150	210	600	395	755	2770	1040	170	171	64
18	594	324	160	220	800	371	897	2090	675	168	233	62
19	521	300	170	220	608	361	1550	1490	533	193	527	61
20	551	250	160	230	586	336	1670	1570	492	166	299	70
21	492	200	160	210	563	311	1340	1650	432	144	185	67
22	432	170	160	200	533	303	1010	1450	1150	139	183	62
23	442	140	160	200	458	307	801	1310	4370	155	177	62
24	426	120	150	190	426	299	640	1320	1570	374	174	59
25	307	120	150	180	352	316	551	1290	1700	421	168	62
26	276	110	140	190	347	352	486	1690	1250	338	389	64
27	250	120	140	220	303	385	464	1380	793	545	1020	62
28	216	120	130	220	299	371	437	1180	647	442	551	58
29	190	130	140	210	---	453	432	1040	527	557	371	55
30	168	130	140	210	---	703	416	849	1700	447	268	54
31	162	---	150	200	---	1160	---	725	---	385	202	---
TOTAL	31497	5971	4300	6040	9505	15175	29783	131484	25875	12466	12598	2399
MEAN	1016	199	139	195	339	490	993	4241	863	402	406	80.0
MAX	6890	324	170	230	800	1260	3680	18800	4370	1240	1100	163
MIN	120	95	110	150	170	288	416	725	292	139	168	54
AC-FT	62470	11840	8530	11980	18850	30100	59070	260800	51320	24730	24990	4760

CAL YR 1982 TOTAL 372479 MEAN 1020 MAX 17900 MIN 10 AC-FT 738800
WTR YR 1983 TOTAL 287093 MEAN 787 MAX 18800 MIN 54 AC-FT 569400

06452000 WHITE RIVER NEAR OACOMA, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-53, 1969, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1976, October 1977 to Sept. 30, 1981.

WATER TEMPERATURES: October 1974 to September 1976, October 1978 to current year.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976, Oct. 1, 1981, to current year.

REMARKS.--Sediment-discharge records fair. Flow affected by ice Nov. 19 to Feb. 18. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,950 micromhos Aug. 8, 1980; minimum daily, 370 micromhos Mar. 17, 1975.
WATER TEMPERATURES: Maximum daily, 30.0°C July 30, 1975, July 10, 1976, July 10, 1980, Aug. 25, 1983; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 72,300 mg/L Apr. 15, 1974; minimum daily mean, 0 mg/L July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976.
SEDIMENT LOADS: Maximum daily, 1,640,000 tons May 17, 1982; 0 ton July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 25; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 40,600 mg/L Aug. 27; minimum daily mean, 53 mg/L Feb. 8, 9.
SEDIMENT LOADS: Maximum daily, 1,220,000 tons May 3; minimum daily, 26 ton Feb. 8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT											
22...	1245	437	566	8.2	6.5	65	--	E37	E27	49	0
NOV											
08...	1135	406	570	--	6.5	--	--	--	--	--	--
DEC											
23...	0930	161	640	8.3	2.5	45	--	530	270	190	0
JAN											
20...	1440	227	790	--	.0	--	--	--	--	--	--
FEB											
25...	1255	338	540	8.2	1.0	650	12.5	<7	450	150	0
MAR											
25...	0940	307	--	--	2.5	--	--	--	--	--	--
APR											
22...	1050	1030	--	--	12.0	--	--	--	--	--	--
22...	1230	1080	651	8.1	12.0	4200	9.3	--	--	140	0
MAY											
03...	1420	20000	--	--	15.5	--	--	--	--	--	--
04...	1310	18900	--	--	15.0	--	--	--	--	--	--
27...	1130	1450	--	--	17.5	--	--	--	--	--	--
JUN											
17...	1040	1170	1040	8.4	17.0	1000	--	>1200	>2000	330	150
JUL											
20...	1130	166	880	--	27.0	--	--	--	--	--	--
AUG											
25...	1500	172	530	8.2	30.0	2500	7.1	--	K67	76	0

< Less than.
> More than.
E Estimated.
K Non-ideal colony count.

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
OCT											
22...	17	1.5	110	81	7	4.8	110	160	7.9	.50	24
NOV											
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
23...	61	8.9	82	47	3	6.7	120	225	10	.50	42
JAN											
20...	--	--	--	--	--	--	--	--	--	--	--
FEB											
25...	49	7.3	72	50	3	5.1	120	166	8.6	.40	28
MAR											
25...	--	--	--	--	--	--	--	--	--	--	--
APR											
22...	--	--	--	--	--	--	--	--	--	--	--
22...	45	7.2	97	58	4	6.8	150	185	9.5	.50	23
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	99	20	120	43	3	11	370	176	12	.40	25
JUL											
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	26	2.6	90	69	5	9.4	97	165	7.7	.50	35

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO4) (71886)
OCT											
22...	375	370	.51	442	.690	<.060	.08	10	.080	3.50	11
NOV											
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
23...	471	470	.64	205	.470	.130	.17	.90	.130	.190	.58
JAN											
20...	--	--	--	--	--	--	--	--	--	--	--
FEB											
25...	386	390	.53	352	.190	.120	.15	1.3	.290	.830	2.5
MAR											
25...	--	--	--	--	--	--	--	--	--	--	--
APR											
22...	--	--	--	--	--	--	--	--	--	--	--
22...	485	450	.66	1410	.620	.060	.08	4.3	.050	4.20	13
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	766	760	1.0	2420	--	--	--	--	--	--	--
JUL											
20...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	377	370	.51	175	.200	.050	.06	6.0	.140	3.20	9.8

< Less than.

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (C1000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT 22...	1245	--	14	--	<1	--	<1	<3	--	5	--
FEB 25...	1255	--	5	--	<1	--	<1	<3	--	3	--
APR 22...	1230	--	6	--	<1	--	<1	<3	--	5	--
JUN 17...	1040	--	7	--	<1	--	<1	<3	--	9	--

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 22...	17	--	2	--	2	--	.1	--	3	--	4
FEB 25...	12	--	<1	--	10	--	.5	--	2	--	5
APR 22...	9	--	1	--	9	--	.2	--	3	--	<3
JUN 17...	10	--	<1	--	3	--	.3	--	4	--	3

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	8.0	1.0	---	---	5.0	6.0	---	14.0	23.0	26.0	25.0
2	10.0	6.0	---	---	.0	5.0	4.0	8.0	15.0	25.0	27.0	26.0
3	---	1.0	---	---	---	7.0	---	15.5	16.0	---	27.0	22.0
4	13.0	.0	---	---	---	8.0	5.0	15.0	16.0	---	27.0	---
5	13.0	.0	---	.0	---	6.0	4.0	14.0	---	21.0	29.0	---
6	8.0	2.0	---	---	---	---	4.0	16.0	18.0	24.0	26.0	17.0
7	7.0	---	---	---	---	.0	5.0	13.0	19.0	25.0	---	20.0
8	9.0	6.5	.0	---	---	.0	6.0	---	18.0	26.0	26.0	24.0
9	9.0	2.0	---	---	.0	.0	8.0	14.0	18.0	27.0	26.0	23.0
10	---	3.0	---	---	---	.0	---	16.0	21.0	22.0	24.0	19.0
11	8.0	.0	---	---	---	.0	10.0	11.0	20.0	23.0	24.0	---
12	7.0	.0	---	1.0	---	.0	6.0	9.0	---	---	24.0	15.0
13	8.0	.0	---	---	---	---	3.0	11.0	18.0	25.0	23.0	15.0
14	8.0	---	---	---	---	5.0	1.0	10.0	19.0	25.0	---	13.0
15	11.0	---	.0	---	---	4.0	5.0	---	20.0	23.0	23.0	15.0
16	9.0	---	---	---	1.0	3.0	7.0	11.0	19.0	24.0	27.0	14.0
17	---	1.0	---	---	---	2.0	---	12.0	17.0	---	27.0	14.0
18	12.0	2.0	---	---	---	2.0	8.0	10.0	19.0	26.0	26.0	---
19	7.0	---	---	.0	---	1.0	9.0	12.0	---	28.0	27.0	13.0
20	5.0	---	---	.0	---	---	11.0	14.0	24.0	27.0	24.0	8.0
21	5.0	---	---	---	---	.0	10.0	16.0	27.0	29.0	---	9.0
22	6.5	---	1.0	---	---	.0	12.0	---	24.0	29.0	22.0	8.0
23	7.0	---	2.5	---	6.0	3.0	14.0	16.0	25.0	27.0	24.0	10.0
24	---	.0	---	---	3.0	4.0	---	17.0	27.0	---	24.0	11.0
25	9.0	---	---	---	1.0	2.5	14.0	16.0	26.0	24.0	30.0	---
26	10.0	---	---	.0	4.0	2.0	13.0	16.0	---	25.0	27.0	12.0
27	11.0	---	---	---	---	---	12.0	17.5	21.0	26.0	25.0	15.0
28	8.0	---	---	---	4.0	4.0	10.0	21.0	19.0	27.0	---	18.0
29	6.0	---	---	---	---	4.0	9.0	---	18.0	25.0	25.0	12.0
30	7.0	1.0	.0	---	---	5.0	8.0	---	20.0	25.0	22.0	14.0
31	---	---	---	---	---	8.0	---	14.0	---	---	23.0	---

< Less than.

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	125	5520	1860	155	674	282	130	261	92
2	125	4190	1410	149	607	244	130	160	56
3	126	4000	1360	142	703	270	130	175	61
4	127	3810	1310	163	612	269	140	185	70
5	120	3530	1140	183	522	258	150	200	81
6	496	14500	19400	107	373	108	140	210	79
7	588	24100	38300	95	355	91	130	225	79
8	453	23100	28300	320	2150	1860	120	240	78
9	627	18500	31300	288	2580	2010	115	250	78
10	718	15600	30200	254	3480	2390	110	260	77
11	5160	31700	442000	320	3680	3180	110	280	83
12	6890	37400	696000	324	3600	3150	115	290	90
13	4700	35800	454000	320	3550	3070	120	300	97
14	2920	23900	188000	270	3200	2330	130	312	110
15	1550	23000	96300	236	2830	1800	130	324	114
16	1020	21400	58900	209	2500	1410	140	300	113
17	725	18000	35200	202	2150	1170	150	280	113
18	594	14000	22500	324	2260	1980	160	255	110
19	521	11000	15500	300	2500	2030	170	235	108
20	551	9500	14100	250	2250	1520	160	210	91
21	492	7200	9560	200	1400	756	160	190	82
22	432	6100	7120	170	480	220	160	170	73
23	442	4850	5790	140	122	46	160	143	62
24	426	4500	5180	120	120	39	150	143	58
25	307	3000	2490	120	190	62	150	143	58
26	276	2250	1680	110	250	74	140	143	54
27	250	2220	1500	120	250	81	140	142	54
28	216	1570	916	120	250	81	130	142	50
29	190	1710	877	130	250	88	140	142	54
30	168	618	280	130	255	90	140	142	54
31	162	646	283	---	---	---	150	143	58
TOTAL	31497	---	2212756	5971	---	30959	4300	---	2437
		JANUARY			FEBRUARY			MARCH	
1	150	145	59	200	93	50	288	804	625
2	160	150	65	200	92	50	295	765	609
3	160	160	69	190	90	46	288	770	599
4	170	170	78	180	80	39	288	720	560
5	180	187	91	180	70	34	320	1510	1300
6	180	180	87	170	60	28	385	1890	1960
7	170	170	78	180	55	27	385	1510	1570
8	170	160	73	180	53	26	371	1010	1010
9	170	145	67	200	53	29	1260	12600	42900
10	180	130	63	230	55	34	1240	18400	61600
11	200	120	65	260	60	42	882	14200	33800
12	220	117	69	250	70	47	725	16800	32900
13	210	117	66	230	85	53	614	16400	27200
14	200	120	65	230	100	62	527	14800	21100
15	200	125	67	300	120	97	458	11300	14000
16	210	125	71	450	132	160	426	8150	9370
17	210	130	74	600	130	211	395	6300	6720
18	220	130	77	800	2060	4450	371	5540	5550
19	220	131	78	608	1990	3270	361	4180	4070
20	230	176	109	586	1900	3010	336	2950	2680
21	210	160	91	563	1820	2770	311	1790	1500
22	200	130	70	533	1780	2560	303	1320	1080
23	200	110	59	458	1700	2100	307	1510	1250
24	190	100	51	426	1580	1820	299	1260	1020
25	180	100	49	352	1200	1140	316	1010	862
26	190	95	49	347	1270	1190	352	1050	998
27	220	95	56	303	1120	916	385	1060	1100
28	220	95	56	299	974	786	371	1060	1060
29	210	95	54	---	---	---	453	1750	2140
30	210	94	53	---	---	---	703	4750	9020
31	200	94	51	---	---	---	1160	6300	19700
TOTAL	6040	---	2110	9505	---	25047	15175	---	309853

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	3680	16600	165000	1310	3200	11300	640	1200	2070
2	2690	16100	117000	12200	19100	629000	575	930	1440
3	2070	12200	68200	18800	24000	1220000	515	830	1150
4	1530	8000	33000	16200	23900	1050000	469	760	962
5	1040	6000	16800	6330	17400	297000	426	700	805
6	817	4500	9930	3450	16700	156000	390	640	674
7	710	3790	7270	2250	14100	85700	380	584	599
8	682	3340	6150	1580	9700	41400	371	600	601
9	696	3120	5860	2810	12800	97100	334	453	409
10	647	2620	4580	7640	39300	811000	307	474	393
11	601	2110	3420	3490	27500	259000	292	445	351
12	601	1900	3080	4340	20400	239000	504	1690	2300
13	689	1710	3180	6210	13900	233000	1400	7670	29000
14	614	1700	2820	11800	36400	1160000	1000	3720	10000
15	627	2050	3470	7160	24700	478000	725	1700	3330
16	640	1750	3020	4110	16700	185000	668	1300	2340
17	755	2250	4590	2770	10000	74800	1040	2410	6770
18	897	2960	7170	2090	6450	36400	675	1710	3120
19	1550	6350	26600	1490	4700	18900	533	1260	1810
20	1670	6700	30200	1570	6000	25400	492	1090	1450
21	1340	7250	26200	1650	5350	23800	432	1200	1400
22	1010	6500	17700	1450	3690	14400	1150	9950	30900
23	801	5200	11200	1310	2390	8450	4370	29900	353000
24	640	4500	7780	1320	2080	7410	1570	31600	134000
25	551	3900	5800	1290	2160	7520	1700	29100	134000
26	486	3230	4240	1690	3080	14100	1250	24200	81700
27	464	2350	2940	1380	3670	13700	793	21500	46000
28	437	2060	2430	1180	3000	9560	647	15600	27300
29	432	1560	1820	1040	2370	6650	527	12700	18100
30	416	1190	1340	849	1720	3940	1700	18900	86800
31	---	---	---	725	1280	2510	---	---	---
TOTAL	29783	---	602790	131484	---	7220040	25875	---	982774
		JULY			AUGUST			SEPTEMBER	
1	1240	20500	68600	347	16000	15000	163	16200	7130
2	703	19800	37600	342	16000	14800	147	13100	5200
3	450	12300	14900	1070	27400	79200	127	10800	3700
4	405	5000	5470	1100	34300	102000	107	8400	2430
5	886	6000	14400	682	29700	54700	107	6600	1910
6	785	5500	11700	557	20000	30100	97	5700	1490
7	582	5040	7920	661	16500	29400	86	5540	1320
8	521	4540	6390	569	11500	17700	85	5510	1260
9	475	4870	6250	481	7200	9350	79	5090	1090
10	347	5500	5150	385	4600	4780	94	4870	1240
11	311	6130	5150	342	3530	3260	86	3470	806
12	280	4870	3680	280	3110	2350	78	2070	436
13	254	4700	3220	254	2030	1390	68	1190	218
14	219	3400	2010	228	2010	1240	73	702	138
15	193	2200	1150	202	1990	1090	70	992	187
16	171	2130	983	180	1340	651	68	648	119
17	170	2220	1020	171	1330	614	64	531	92
18	168	2320	1050	233	2350	1480	62	432	72
19	193	2300	1200	527	4450	6330	61	332	55
20	166	1700	762	299	3900	3150	70	682	129
21	144	3700	1440	185	4500	2250	67	746	135
22	139	6100	2290	183	4600	2270	62	396	66
23	155	9000	3770	177	3000	1430	62	371	62
24	374	19000	19200	174	4630	2180	59	296	47
25	421	24400	27700	168	5200	2360	62	287	48
26	338	21100	19300	389	10200	10700	64	278	48
27	545	18500	27200	1020	40600	112000	62	340	57
28	442	19500	23300	551	34300	51000	58	410	64
29	557	22100	33200	371	30400	30500	55	310	46
30	447	23200	28000	268	24700	17900	54	225	33
31	385	19500	20300	202	21500	11700	---	---	---
TOTAL	12466	---	404305	12598	---	622875	2399	---	29628

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)
OCT							
22...	1245	437	6.5	6360	7500	--	91
NOV							
08...	1135	406	6.5	--	--	--	--
DEC							
23...	0930	161	2.5	143	62	94	--
JAN							
20...	1440	227	.0	176	108	98	--
FEB							
25...	1255	338	1.0	1150	1050	--	--
MAR							
25...	0940	307	2.5	1040	862	--	--
APR							
22...	1050	1030	12.0	6600	18400	--	74
22...	1230	1080	12.0	--	--	--	--
MAY							
03...	1420	20000	15.5	17400	940000	92	--
04...	1310	18900	15.0	20800	1060000	--	--
27...	1130	1450	17.5	--	--	--	--
JUN							
17...	1040	1170	17.0	2740	8660	94	--
JUL							
20...	1130	166	27.0	1700	762	100	77
AUG							
25...	1500	172	30.0	4900	2280	100	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (7C342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
OCT						
22...	93	97	--	--	--	--
NOV						
08...	--	--	--	--	--	--
DEC						
23...	--	--	--	--	--	--
JAN						
20...	--	--	--	--	--	--
FEB						
25...	--	--	99	100	--	--
MAR						
25...	--	--	97	98	100	--
APR						
22...	81	93	98	99	100	--
22...	--	--	--	--	--	--
MAY						
03...	--	--	--	--	--	--
04...	--	--	93	--	99	100
27...	--	--	--	--	--	--
JUN						
17...	--	--	--	--	--	--
JUL						
20...	89	98	--	--	--	--
AUG						
25...	--	--	--	--	--	--

06452500 LAKE FRANCIS CASE AT PICKSTOWN, SD

LOCATION.--Lat 43°04'05", long 98°33'15", in SE¼ sec.5, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, in tower 6 of outlet works at Fort Randall Dam, on Missouri River at Pickstown, 1.0 mi upstream from Randall Creek, and at mile 880.0.

DRAINAGE AREA.--263,500 mi^2, approximately.

STAGE-CONTENTS RECORDS

PERIOD OF RECORD.--December 1952 to current year (monthend contents only). Prior to October 1964, published as Fort Randall Reservoir at Pickstown.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1953, elevations determined from temporary nonrecording gages.

REMARKS.--Reservoir is formed by earthfill dam; storage began in December 1952; initial closure made July 1952. Maximum capacity, 5,574,000 acre-ft below elevation 1,375.0 ft (top of spillway gates). Normal maximum, 4,590,000 acre-ft below elevation 1,365.0 ft. Inactive storage, 1,149,000 acre-ft below elevation 1,310.0 ft. No dead storage; elevation of invert of lowest outlet is 1,227.0 ft. Figures given herein represent elevations at outlet works and total contents adjusted for wind effect.

The spillway consists of 21 taintor gates, each 40 ft wide by 29 ft high; spillway capacity, 490,000 ft^3/s at pool elevation 1,375 ft. Crest of spillway is at elevation 1,346 ft. Normal releases are through 12 tunnels 22 ft in diameter. Installation of power units in 8 of these tunnels was completed in January 1956; maximum release through power tunnels is 46,000 ft^3/s; maximum release through 4 other tunnels is 130,000 ft^3/s at pool elevation 1,375 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevations and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,087,000 acre-ft June 20, 1962, affected by wind; minimum since initial filling, 1,450,000 acre-ft Oct. 23, 1956, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,101,000 acre-ft July 2; minimum contents, 2,404,000 acre-ft Nov. 30.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	1356.07	3807000	
Oct. 31	1349.69	3268000	-539000
Nov. 30	1336.86	2404000	-864000
Dec. 31	1340.96	2647000	+243000
CAL YR 1982			-5000
Jan. 1	1340.96	*2618000	-29000
Jan. 31	1349.52	3222000	+604000
Feb. 28	1353.25	3532000	+310000
Mar. 31	1355.25	3713000	+181000
Apr. 30	1354.86	3671000	-42000
May 31	1353.86	3583000	-88000
June 30	1359.94	4062000	+479000
July 31	1354.81	3675000	-387000
Aug. 31	1356.82	3837000	+162000
Sept. 30	1351.84	3423000	-414000
WTR YR 1983			-384000

* From capacity table put into use Jan. 1, 1983.

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD

LOCATION.--Lat 43°03'54", long 98°33'11", in NW¼NE¼ sec.8, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10170101, in powerhouse of Fort Randall Dam on Missouri River at Pickstown, 0.8 mi upstream from Randall Creek, and at mile 879.8.

DRAINAGE AREA.--263,500 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1947 to current year. Prior to October 1969 published as "below Fort Randall Dam".

GAGE.--Totalizing flowmeters on each turbine in Fort Randall powerhouse. Prior to Nov. 10, 1965, water-stage recorder at site 7.0 mi downstream at datum 1,230.00 ft National Geodetic Vertical Datum of 1929 and Nov. 10, 1965, to June 30, 1969, at datum 5.00 ft lower (Corps of Engineers bench mark).

REMARKS.--Records good. Flow completely regulated by Lake Francis Case (see station 06452500). Many diversions for irrigation above station.

COOPERATION.--Daily discharge determined from flow through turbines furnished by Corps of Engineers.

AVERAGE DISCHARGE.--36 years, 25,230 ft^3/s (18,279,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 447,000 ft^3/s Apr. 12, 1952; maximum gage height, 20.82 ft Apr. 12, 1952 (site and datum then in use); minimum daily discharge, 100 ft^3/s Mar. 29, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1943 reached a stage of about 16.5 ft. Maximum stage known, in April 1881, was about 5 ft higher than that of April 1943, both at site 7.0 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge during year, 39,500 ft^3/s Nov. 25; minimum daily 900 ft^3/s July 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31400	33300	36900	21600	19300	20800	10200	21400	24200	900	31700	35200
2	29300	34900	36500	21500	20800	19500	4900	18100	24600	2800	30700	35600
3	29400	36600	31800	23200	21800	17500	4800	12000	23800	5900	30000	35000
4	28700	36400	32900	22000	21000	14600	4900	7800	23400	9700	31500	35100
5	29800	36500	31000	21300	20300	13700	6700	7600	23300	13900	32000	34900
6	29000	36300	27200	19600	20100	11900	6600	6800	25100	15100	33500	34000
7	29600	35900	31600	18200	20100	9200	6700	11500	24300	17400	33700	33600
8	30800	35400	33600	19800	21000	9000	6700	15200	24700	18300	33900	34800
9	28700	35200	31800	19800	21000	8800	13900	17200	26900	20000	31900	34300
10	27400	35000	25000	19500	18800	14000	18700	18400	27400	22200	32800	34100
11	27600	35000	23000	20300	19500	15600	15800	17700	24900	22000	33200	34500
12	30200	35200	18600	19700	19300	17700	15100	17400	23800	27300	35300	35300
13	32500	29000	18800	19500	19300	19300	11500	17000	21200	29100	34400	36100
14	32800	27600	22800	19600	18100	13400	6900	17800	16600	31700	34500	34400
15	34700	32800	21600	18500	17500	9600	7000	17400	14600	28800	36100	33300
16	34600	35300	20200	17700	18300	7800	7000	18200	14300	26600	34000	33000
17	34700	38800	20400	16700	17200	8800	6900	19800	14300	27800	33500	33300
18	35000	37900	20300	19300	17100	9700	9100	22000	13400	19900	33200	33900
19	35200	38100	20100	21000	16900	13500	7700	21500	13900	25600	33400	33800
20	33400	37900	21200	22300	15200	17000	7300	20500	10400	29600	33300	33000
21	32600	38200	20500	22500	15700	22500	8900	20400	5500	30300	35200	32700
22	33000	38300	18500	19200	13800	21500	11100	20100	5200	32600	34400	32300
23	32800	39100	20300	19200	14600	22600	12400	19400	4800	33900	34600	32800
24	32800	39300	20000	20600	14800	24600	16200	19800	4900	34100	35000	33100
25	32700	39500	19700	21000	16600	23900	17500	22900	8700	34800	34900	33300
26	33000	38900	20000	20900	17300	23700	19200	24800	12300	35900	33900	34200
27	33600	38500	23100	20400	19100	22400	21500	26300	6600	37200	33300	34500
28	33900	38700	22100	20600	21700	22400	22200	26200	2800	33300	32900	34300
29	33900	35000	23400	21000	---	22600	23100	27000	1400	35100	35100	33900
30	32400	35500	23800	21500	---	22100	23100	27200	1600	33000	34700	33000
31	31000	---	22000	22200	---	19400	---	25600	---	32800	33400	---
TOTAL	986500	1084100	758700	630200	516200	519100	353600	585000	469100	767600	1040000	1021300
MEAN	31820	36140	24470	20330	18440	16750	11790	18870	15640	24760	33550	34040
MAX	35200	39500	36900	23200	21800	24600	23100	27200	27400	37200	36100	36100
MIN	27400	27600	18500	16700	13800	7800	4800	6800	1400	900	30000	32300
AC-FT	1957000	2150000	1505000	1250000	1024000	1030000	701400	1160000	930500	1523000	2063000	2026000

CAL YR 1982 TOTAL 8801900 MEAN 24110 MAX 39500 MIN 900 AC-FT 17460000
WTR YR 1983 TOTAL 8731400 MEAN 23920 MAX 39500 MIN 900 AC-FT 17320000

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1978.
WATER TEMPERATURES: October 1974 to September 1978.
DISSOLVED OXYGEN: October 1974 to September 1978.

INSTRUMENTATION.--Water-quality monitor since June 1973.

REMARKS.--Water is supplied to the monitor from the raw water intake located in the penstocks. This location is 121 ft (37 m) below the normal pool surface. Depth of observation is 1,227 ft (374 m) above mean sea level. Records prior to October 1974 are on file in the District office, Corps of Engineers, Omaha, NE. In addition to the water-quality monitor, samples were collected once a month.

COOPERATION.--Records of specific conductance, water temperature, dissolved oxygen and pH were furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily mean, 850 micromhos Mar. 10, 1975; minimum daily mean, 606 micromhos Dec. 7, 1976.
WATER TEMPERATURES: Maximum daily mean, 25.5°C Aug. 9, 12-16, 25, 1975, July 31 to Aug. 2, Aug. 5, 10, 1977, Aug. 25, 1978; minimum daily mean, 0.0°C Jan. 21-26, 1975.
DISSOLVED OXYGEN: Maximum daily mean, 13.2 mg/L Jan. 2, 3, Feb. 5-11, 14-21, 1975; minimum daily mean, 6.7 mg/L Aug. 6, 8, 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV											
15...	1500	34700	770	8.4	5.5	4.5	7.6	E2	E2	250	95
JAN											
28...	1300	25700	860	8.6	1.0	1.1	--	<1	<1	260	96
MAR											
22...	1200	27600	760	7.8	2.5	1.9	13.5	<1	78	250	95
MAY											
02...	1230	26800	780	7.7	5.5	2.0	12.4	27	35	260	100
JUL											
19...	1530	34500	870	7.6	22.5	1.6	7.9	53	35	270	120
SEP											
08...	1300	33000	--	7.3	24.5	1.4	7.8	K2	36	240	89

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925;	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV											
15...	61	24	74	38	2	5.0	250	157	12	.50	5.1
JAN											
28...	63	24	74	38	2	4.9	250	160	10	.50	4.8
MAR											
22...	61	24	71	38	2	4.7	230	157	10	.50	4.5
MAY											
02...	62	25	75	38	2	5.1	250	155	10	.50	4.2
JUL											
19...	70	24	81	39	2	5.7	250	157	13	.50	4.8
SEP											
08...	58	24	78	40	2	5.9	270	156	12	.50	5.2

< Less than.
E Estimated.
K Non-ideal colony count.

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVEC (MG/L) (70301)	SCLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO4) (71886)
NOV 15...	539	530	.73	50500	<.100	.250	.32	1.0	.010	.020	.06
JAN 28...	523	530	.71	36300	.100	.100	.13	1.6	.040	.220	.67
MAR 22...	500	500	.68	37300	.130	.250	.32	.70	.020	.020	.06
MAY 02...	525	530	.71	38000	.140	.270	.35	.50	.020	.030	.09
JUL 19...	560	540	.76	52200	.130	.080	.10	.50	.070	.080	.25
SEP 08...	527	550	.72	47000	<.100	.100	.13	.50	.020	.020	.06

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVEC (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
NOV 15...	1500	--	2	--	<1	--	<1	<3	--	2	--
MAR 22...	1200	--	2	--	<1	--	<1	<3	--	1	--
MAY 02...	1230	--	2	--	<1	--	<1	<3	--	3	--
SEP 08...	1300	--	3	--	<1	--	<1	<3	--	2	--

DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 15...	6	--	2	--	40	--	.1	--	2	--	9
MAR 22...	9	--	<1	--	31	--	1.6	--	2	--	10
MAY 02...	3	--	<1	--	62	--	.1	--	2	--	21
SEP 08...	4	--	<1	--	37	--	<.1	--	2	--	8

< Less than.

06453010 MISSOURI RIVER AT GREENWOOD, SD

STAGE RECORDS

LOCATION.--Lat 42°55'11", long 98°23'01", in SE¼NW¼NW¼ sec.35, T.94 N., R.64 W., Charles Mix County, Hydrologic Unit 10170101, on left bank 0.25 mi southeast of Greenwood at mile 865.0.

PERIOD OF RECORD.--1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Stage regulated by Lake Francis Case 15.0 mi upstream (see station 06452500). Prior to Oct. 1, 1980, gage heights in files of Corps of Engineers.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.86	---	28.68	26.96	25.95	25.88	24.65	26.22	26.66	21.30	28.19	28.36
2	27.46	---	28.71	26.85	25.63	25.67	22.33	25.78	26.67	21.37	27.80	28.53
3	27.40	---	27.91	27.02	26.12	25.35	21.66	24.42	26.67	21.75	27.82	28.47
4	27.50	---	28.27	26.87	26.33	25.00	21.89	23.28	26.53	22.46	27.66	28.42
5	27.60	---	27.82	26.53	25.94	24.38	22.26	22.53	26.53	24.03	28.09	28.40
6	27.06	---	27.17	26.34	26.17	24.17	22.45	22.65	26.65	24.33	28.17	28.27
7	27.39	---	27.84	25.77	26.29	23.45	22.49	23.21	26.76	24.84	28.23	28.21
8	27.56	---	28.15	25.68	26.21	22.93	22.39	24.45	26.78	25.23	28.28	28.45
9	27.63	---	28.11	25.84	26.12	23.13	23.26	25.17	26.91	25.57	28.16	28.29
10	27.15	---	27.21	25.78	25.88	23.64	24.93	25.51	27.17	25.97	28.11	28.31
11	27.71	---	26.48	25.83	25.21	25.02	25.62	25.36	27.15	26.25	28.18	28.27
12	27.40	---	26.26	25.98	25.56	25.06	24.72	25.21	26.83	26.50	28.22	28.46
13	27.75	---	25.69	25.82	25.49	25.15	24.32	25.01	26.50	27.33	28.61	28.54
14	27.96	---	25.89	25.68	25.42	25.36	22.76	25.12	25.60	28.01	28.41	28.48
15	28.24	---	26.27	25.60	25.15	23.29	22.42	25.08	24.63	27.91	28.30	28.02
16	28.34	28.70	26.34	25.49	25.10	23.07	22.39	25.15	24.69	27.13	28.43	28.16
17	28.25	29.04	26.05	25.25	25.28	22.91	22.59	25.64	24.76	27.15	28.18	28.00
18	28.33	29.01	25.98	25.74	25.05	23.27	22.73	26.06	24.58	26.84	28.18	28.16
19	28.26	28.93	25.94	26.14	25.23	24.00	22.84	26.11	24.41	26.02	28.26	28.20
20	28.08	28.93	25.76	26.44	24.83	24.72	22.69	26.06	24.36	27.47	28.13	28.04
21	28.05	29.05	26.11	26.47	24.44	25.76	22.92	26.02	22.65	27.48	28.28	28.00
22	28.10	29.04	25.70	26.21	24.54	26.25	23.54	26.00	21.78	28.15	28.48	27.88
23	28.09	29.16	25.77	25.76	24.54	26.69	23.74	25.87	21.94	28.37	28.38	27.95
24	28.12	29.33	25.68	25.93	24.51	26.74	24.30	25.79	21.99	28.36	28.40	28.16
25	28.09	29.35	25.78	26.00	24.60	26.80	25.30	26.14	22.21	28.34	28.43	28.06
26	28.13	29.30	25.97	26.15	25.09	26.53	25.33	26.58	23.29	28.38	28.28	28.15
27	28.38	29.32	26.21	26.10	25.26	26.42	25.95	26.96	23.58	28.81	28.25	28.28
28	28.15	29.31	26.32	26.13	25.73	26.33	26.21	27.00	21.82	28.62	28.10	28.27
29	28.17	28.92	26.95	26.07	---	26.38	26.15	27.05	21.35	28.22	28.58	28.22
30	---	28.54	27.22	26.01	---	26.34	26.55	27.12	21.29	28.37	28.27	27.99
31	---	---	27.22	26.17	---	26.01	---	27.09	---	28.19	28.24	---

06453255 CHOTEAU CREEK NEAR AVON, SD

LOCATION.--Lat 42°55'24", long 98°06'21", in NW¼NW¼NW¼ sec.31, T.94 N., R.61 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at downstream side of highway bridge, 6.3 mi southwest of Avon, 0.7 mi downstream from Dry Choteau Creek, and 12.7 mi upstream from mouth.

DRAINAGE AREA.--602 mi².

PERIOD OF RECORD.--Oct. 1, 1982, to Sept. 30, 1983.

GAGE.--Water-stage recorder. Altitude of gage is 1,290 ft, from topographic map.

REMARKS.--Records good except those for winter period and/or backwater from beaver dam, Oct. 1 to Mar. 31, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 24	0300	422	5.19	May 2	1945	427	5.21
Mar. 7	1500	388	5.04	May 5	1830	629	5.99
Mar. 10	1100	316	4.71	July 1	1315	186	4.09
Apr. 1	1100	*703	*6.24	July 8	1730	178	4.05
Apr. 13	1730	376	4.99	Aug. 1	1715	101	3.45
Apr. 17	0545	500	5.51				

Minimum daily discharge, 0.83 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	2.6	6.6	3.0	3.3	138	617	96	23	175	61	4.4
2	.90	3.4	6.6	3.0	3.3	127	582	254	22	175	76	4.1
3	.93	3.1	6.5	2.9	3.1	119	669	347	21	141	60	3.8
4	.92	3.1	6.4	2.9	3.0	108	597	276	19	122	46	3.5
5	1.0	3.2	6.2	2.9	3.0	114	429	550	19	116	34	3.3
6	1.0	3.6	6.2	2.9	2.9	199	320	540	17	126	26	3.1
7	1.0	3.4	6.0	3.1	2.9	373	263	400	17	152	23	2.8
8	1.0	4.0	5.8	3.1	2.8	146	210	302	15	172	19	3.0
9	1.3	4.4	5.7	3.2	2.8	94	179	183	14	177	17	1.9
10	1.2	4.6	5.9	3.3	2.8	191	179	129	14	167	14	1.8
11	1.2	5.0	5.4	3.3	2.8	160	176	114	13	152	13	2.0
12	1.2	5.1	5.1	3.6	2.7	168	163	121	13	138	12	2.0
13	1.2	5.2	5.1	3.6	2.6	159	327	113	14	126	11	2.1
14	1.2	5.3	5.1	3.5	2.7	150	280	101	15	114	10	2.2
15	1.2	5.4	5.0	3.4	3.7	128	241	88	13	104	9.7	2.6
16	1.2	5.4	4.7	3.4	23	119	434	78	12	96	8.6	2.3
17	1.2	6.4	4.6	3.3	168	123	468	73	16	95	8.3	2.4
18	1.2	6.6	4.6	3.2	281	128	370	72	20	92	8.1	2.1
19	1.4	6.6	4.5	3.2	254	144	420	73	19	89	7.8	2.2
20	1.0	6.6	4.4	3.2	316	141	415	73	17	83	7.6	2.1
21	1.2	7.3	4.4	3.2	194	120	374	72	18	75	7.2	2.1
22	.95	6.8	4.4	3.3	211	100	289	64	20	66	7.0	2.1
23	1.4	6.8	4.4	3.4	356	92	229	59	24	66	6.9	2.1
24	1.7	7.4	4.4	3.4	388	85	192	52	31	61	6.5	2.2
25	2.0	7.7	3.9	3.6	215	81	159	45	29	56	6.5	2.3
26	2.2	6.8	3.4	3.7	153	78	132	39	23	51	5.8	2.6
27	2.3	6.7	3.6	3.7	144	68	123	34	22	47	5.6	2.9
28	2.5	6.8	3.3	3.7	147	78	113	29	26	43	5.3	2.4
29	2.6	6.5	3.3	3.6	---	86	103	25	34	44	5.2	3.1
30	2.8	6.6	3.1	3.5	---	178	98	24	99	39	4.8	2.6
31	2.8	---	3.0	3.3	---	503	---	24	---	37	4.5	---
TOTAL	44.53	162.4	151.6	102.4	2894.4	4498	9151	4450	659	3197	537.4	78.1
MEAN	1.44	5.41	4.89	3.30	103	145	305	144	22.0	103	17.3	2.60
MAX	2.8	7.7	6.6	3.7	388	503	669	550	99	177	76	6.4
MIN	.83	2.6	3.0	2.9	2.6	68	98	24	12	37	4.5	1.8
AC-FT	88	322	301	203	5740	89[illegible]	18150	8830	1310	6340	1070	155

WTR YR 1983 TOTAL 25925.83 MEAN 71.0 MAX 669 MIN .83 AC-FT 51420

06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'42", long 99°46'45", in SE¼ sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on left bank 13 ft downstream from bridge on U.S. Highway 183, 1.0 mi north of Wewela, 4.5 mi upstream from Holt Creek, and 11.5 mi downstream from Lost Creek.

DRAINAGE AREA.--1,070 mi², approximately.

PERIOD OF RECORD.--November 1937 to September 1940, October 1947 to current year. Monthly discharge only for October 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,049.78 ft National Geodetic Vertical Datum of 1929. Prior to June 21, 1957, nonrecording gage at site 13 ft upstream at same datum.

REMARKS.--Records good except those for winter period, Nov. 25 to Feb. 17, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years (water years 1939-40, 1948-83), 68.9 ft³/s (49,920 acre-ft/yr); median of yearly mean discharges, 58 ft³/s (42,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,430 ft³/s Mar. 31, 1952 (gage height, 13.08 ft); maximum gage height, 13.5 ft Mar. 25, 1950, from floodmark (backwater from ice); no flow Jan. 10 to Feb. 15, 1949, Aug. 19 to Sept. 14, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 15	2100	290	a3.00	May 20	0300	258	2.82
Mar. 6	1645	413	3.16	June 15	0900	446	3.31
Mar. 31	2215	333	2.98	June 21	0015	820	4.50
Apr. 17	0630	313	2.91	June 29	0615	*1240	*5.35
May 3	1830	1220	5.33	July 18	1015	824	4.51
May 13	1030	784	4.42				

a Backwater from ice.
Minimum daily discharge, 31 ft³/s June 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	81	90	57	75	99	308	320	64	572	136	48
2	41	81	85	60	70	97	238	930	65	479	132	50
3	40	80	90	60	70	96	193	1120	67	356	123	47
4	38	77	100	65	70	94	166	852	63	282	106	52
5	38	76	90	70	65	110	154	464	55	230	99	62
6	50	76	70	70	65	333	161	326	49	191	89	55
7	45	77	60	70	70	305	161	271	45	161	84	50
8	60	78	50	65	70	226	148	234	35	129	76	49
9	100	78	50	65	75	156	130	195	34	109	73	46
10	105	79	55	65	80	156	117	164	34	92	70	45
11	100	89	50	70	90	151	108	208	31	81	67	44
12	130	120	55	80	95	143	122	554	40	70	65	44
13	140	100	60	100	120	134	94	715	130	71	63	47
14	120	80	60	110	200	122	106	579	346	77	60	46
15	100	75	55	95	250	113	195	360	406	70	60	50
16	90	70	55	90	280	106	249	264	343	159	58	53
17	85	70	60	95	200	105	296	218	280	498	58	50
18	80	73	65	100	135	105	262	214	226	767	58	48
19	90	80	60	104	121	106	210	236	200	620	57	47
20	100	85	60	106	110	105	180	247	601	402	51	48
21	97	87	60	110	105	99	171	224	605	262	51	48
22	96	85	70	110	104	101	144	198	443	180	50	49
23	93	85	80	100	102	106	124	171	353	143	50	50
24	91	70	70	95	99	106	110	152	241	132	50	50
25	88	60	60	90	94	112	99	134	162	123	49	50
26	87	50	60	90	91	130	89	119	140	130	47	49
27	83	55	57	90	92	123	82	104	206	134	46	47
28	81	65	55	95	95	120	84	91	883	106	46	46
29	80	60	55	100	---	146	99	81	970	104	45	45
30	78	85	55	90	---	230	126	72	687	117	46	45
31	79	---	57	80	---	313	---	67	---	144	47	---
TOTAL	2547	2327	1999	2649	3093	4448	4726	9884	7804	6991	2112	1460
MEAN	82.2	77.6	64.5	85.5	110	143	158	319	260	226	68.1	48.7
MAX	140	120	100	110	280	333	308	1120	970	767	136	62
MIN	38	50	50	57	65	94	82	67	31	70	45	44
AC-FT	5050	4620	3970	5250	6130	8820	9370	19600	15480	13870	4190	2900

CAL YR 1982 TOTAL 36601.0 MEAN 100 MAX 1390 MIN 9.0 AC-FT 72600
WTR YR 1983 TOTAL 50040.0 MEAN 137 MAX 1120 MIN 31 AC-FT 99250

06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

STAGE RECORDS

LOCATION.--Lat 42°51'21", long 97°53'06", in SW¼NE¼SW¼ sec.24, T.93 N., R.60 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at east edge of Springfield at mile 832.20.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Stage regulated by Gavins Point Dam 21.2 mi downstream. Prior to Oct. 1, 1980, gage heights in files of Corps of Engineers.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.97	8.79	9.45	10.36	8.95	7.09	7.62	7.35	---	8.04	9.25	8.92
2	9.10	8.75	9.31	10.23	8.88	7.08	7.57	7.40	---	7.80	9.23	8.96
3	9.07	8.87	9.12	10.12	8.35	7.00	7.59	7.63	---	7.35	9.10	9.01
4	9.01	8.99	8.94	10.14	8.39	6.94	7.48	7.37	---	7.09	9.03	9.03
5	9.04	9.06	8.83	9.05	8.84	7.03	7.07	6.97	---	7.06	8.98	9.05
6	8.87	9.08	8.69	9.88	8.80	6.90	6.63	6.69	---	7.16	8.93	9.04
7	8.84	9.10	8.58	9.73	8.76	6.95	6.24	6.28	---	7.21	8.90	9.07
8	8.93	9.17	8.70	9.52	8.85	6.96	5.88	6.30	7.13	7.25	8.96	9.07
9	9.00	9.23	8.89	9.48	8.98	7.62	5.52	6.68	7.20	7.31	9.03	9.09
10	8.92	9.26	8.81	9.61	9.01	7.79	5.99	6.78	7.31	7.39	8.89	9.08
11	8.73	9.42	8.53	9.51	8.90	8.15	6.55	6.87	7.45	7.47	8.86	9.08
12	8.58	9.47	8.34	9.32	8.92	7.30	6.64	6.85	7.42	7.56	8.86	9.07
13	8.61	9.71	8.04	9.37	9.07	7.04	6.51	6.89	7.35	7.75	8.87	9.17
14	8.64	9.42	7.79	9.41	8.97	7.34	6.27	6.93	7.35	8.03	8.99	9.33
15	8.70	8.97	7.93	9.22	8.50	7.27	6.09	6.91	7.16	8.34	9.00	9.29
16	8.80	8.85	8.08	9.02	8.07	6.92	6.11	6.80	7.03	8.34	9.00	9.27
17	8.81	8.99	8.07	8.95	7.95	6.62	6.31	6.87	7.15	8.36	9.04	9.32
18	8.83	9.09	8.01	8.46	7.92	6.33	6.24	7.04	7.14	8.60	9.05	9.22
19	8.88	9.14	8.07	8.29	7.91	6.15	6.38	7.14	7.06	8.38	8.98	9.29
20	9.00	9.07	8.04	8.44	7.95	6.14	6.24	7.18	6.98	8.09	9.02	9.18
21	9.02	9.12	8.08	8.80	7.79	6.49	6.09	7.15	6.90	8.12	8.92	9.22
22	8.99	9.12	8.09	9.10	7.56	6.86	5.98	7.09	7.01	8.13	9.00	9.21
23	9.00	9.13	8.00	8.93	7.34	6.83	5.96	7.06	7.18	8.45	9.06	9.16
24	8.98	9.19	8.07	8.76	7.21	6.98	5.92	6.93	6.99	8.60	9.03	9.09
25	8.96	9.29	8.19	8.87	7.01	7.34	6.16	6.88	6.70	8.68	9.05	9.05
26	8.96	9.38	9.33	8.79	6.90	7.40	6.42	7.06	6.51	8.71	9.03	9.00
27	8.98	9.46	9.94	8.53	6.85	7.35	6.53	7.28	6.85	8.85	9.02	9.05
28	8.90	9.51	10.11	8.51	6.91	7.29	6.75	7.35	7.43	9.08	8.99	9.07
29	8.94	9.58	9.60	8.94	---	7.29	6.90	---	7.72	9.11	8.96	9.08
30	8.98	9.53	9.87	8.97	---	7.37	7.00	---	8.07	9.12	9.10	9.13
31	8.92	---	10.28	8.91	---	7.49	---	---	---	9.18	8.95	---

06467000 LEWIS AND CLARK LAKE NEAR YANKTON, SD

LOCATION.--Lat 42°50'56", long 97°28'54", in SW¼ sec.7, T.33 N., R.1 W., Cedar County, NE, Hydrologic Unit 10170101, in powerhouse of Gavins Point Dam on Missouri River, 3.75 mi southwest of Yankton, 13.6 mi upstream from James River, 32.5 mi downstream from Niobrara River, and at mile 811.0.

DRAINAGE AREA.--279,500 mi^2, approximately.

PERIOD OF RECORD.--July 1955 to current year (monthend contents only). Prior to October 1955, published as Gavins Point Reservoir near Yankton.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Dec. 9, 1955, recorder at temporary location on wall of intake structure unit 3.

REMARKS.--Reservoir is formed by earthfill dam; storage began in July 1955. Maximum capacity, 504,000 acre-ft below elevation 1,210.0 ft (top of spillway gates). Normal maximum, 443,000 acre-ft below elevation 1,208.0 ft. Inactive storage, 157,000 acre-ft below elevation 1,195.0 ft. Dead storage, 23,000 acre-ft below elevation 1,180.0 ft (crest of spillway). Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of 14 taintor gates, each 40 ft wide by 30 ft high; spillway capacity, 280,000 ft^3/s at pool elevation 1,210.0 ft. Crest of spillway is at elevation 1,180.0 ft. Normal releases are through 3 power units, installation completed in January 1957; maximum release through power units is 35,000 ft^3/s at pool elevation, 1,210.0 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevations and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 565,000 acre-ft Apr. 1, 1960, affected by wind; minimum since initial filling, 61,950 acre-ft Apr. 23, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 467,000 acre-ft Nov. 13; minimum, 342,000 acre-ft Apr. 25.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

Date	Elevation	Contents	Change in contents
Sept. 30	1208.10	447000	
Oct. 31	1207.96	440000	-7000
Nov. 30	1208.42	456000	+16000
Dec. 31	1205.21	364000	-92000
CAL YR 1982			-71000
Jan. 31	1207.89	439000	+75000
Feb. 28	1205.42	371000	-68000
Mar. 31	1206.48	400000	+29000
Apr. 30	1205.02	361000	-39000
May 31	1205.76	380000	+19000
June 30	1208.05	443000	+63000
July 31	1208.16	446000	+3000
Aug. 31	1207.65	434000	-12000
Sept. 30	1207.85	439000	+5000
WTR YR 1983			-8000

06467500 MISSOURI RIVER AT YANKTON, SD

LOCATION.--Lat 42°51'58", long 97°23'57", in SW¼SW¼ sec.18, T.93 N., R.55 W., Yankton County, Hydrologic Unit 10170101, near left bank in downstream end of left pier of Meridian Highway Bridge on U.S. Highway 81, 5.2 mi downstream from Gavins Point Dam, 6.0 mi upstream from James River, and at mile 805.8.

DRAINAGE AREA.--279,500 mi^2, approximately.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at same site March 1873 to November 1886, March 1905 to May 1908 (fragmentary), August 1921 to date (except winter months prior to 1932), are contained in reports of the U.S. Weather Bureau.

GAGE.--Water-stage recorder. Datum of gage is 1,139.68 ft National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft higher.

REMARKS.--Records good except those for winter period, Dec. 26 to Feb. 7, which are poor. Flow completely regulated by Lewis and Clark Lake 5.2 mi upstream since July 1955 (see station 06467000). Many diversions for irrigation and water supply above station. Corps of Engineers gage-height telemeter at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--53 years, 26,430 ft^3/s (19,150,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft^3/s Apr. 13, 1952; maximum gage height, 35.5 ft Apr. 13, 14, 1952 (present datum); minimum daily discharge, 2,700 ft^3/s Nov. 15, 16, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 50.5 ft Apr. 5, 1881 (ice jam), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45,100 ft^3/s at 1915 hours, Dec. 1 (gage height, 18.78 ft); minimum daily discharge, 6,000 ft^3/s June 22, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33600	37900	44600	24200	24000	23700	19600	24200	28100	12300	37600	39000
2	33500	37800	44600	24100	24000	23800	12900	23700	28600	12300	37200	37900
3	33800	38500	42700	24200	24000	22100	9230	23200	28500	12100	37400	39100
4	33900	40800	40600	24200	24000	19100	12800	21600	28600	12900	37600	39000
5	34000	41400	36800	24200	24000	17500	16900	20100	28500	15000	37700	38800
6	34000	41400	35600	24200	24000	17300	17900	19500	28600	17300	37700	38300
7	34200	41400	35600	24200	24000	16300	18100	19300	28700	18300	37700	38100
8	34600	41500	34200	24200	23700	15000	16100	19400	28600	20300	37800	38900
9	34700	41500	34300	24200	23400	15100	16600	19700	28800	21600	37800	37400
10	34700	41500	34100	24200	23200	16900	18800	21200	28400	22800	37700	36900
11	34700	41600	31100	24100	23700	17100	19100	21500	27800	23700	38000	38800
12	34700	41200	28400	24200	23700	19600	19800	21400	27400	25500	38100	38800
13	35300	41700	25900	24200	23700	19900	17600	22200	27000	27700	38100	38100
14	35900	41500	24600	24200	23500	20200	12600	23100	23300	29600	38200	38600
15	37300	41500	24600	24200	23600	17600	9170	24300	19100	30700	38200	37400
16	37600	41500	24700	21400	23700	16200	11600	25300	19100	31700	37900	37900
17	37600	43500	24300	22500	23600	17000	12100	25900	19600	31800	37900	38300
18	37700	44000	24500	23600	23700	18700	12000	25800	19200	32900	37700	38500
19	37700	44100	24500	23700	23600	20500	13000	25600	19300	36300	37900	36800
20	37500	44100	24500	23800	23500	21700	14200	25600	17500	36600	38600	37700
21	37600	44400	24500	23800	23600	22600	15200	25700	9200	36600	38600	36900
22	37800	44300	24400	23800	23900	23300	17000	25600	6000	37200	38600	38500
23	37800	44300	24400	23800	24000	23800	18400	26100	7500	37000	38700	38100
24	37800	44300	24400	23600	23800	24800	19800	27000	11600	36400	38700	38800
25	37900	44200	24200	23800	24000	25400	20200	27300	12100	37000	38900	38600
26	38000	44200	24200	23800	23900	25600	21000	27400	13200	37200	38900	38700
27	38000	44400	24200	23800	23800	25200	21500	27200	13200	37200	38900	37700
28	37900	44300	24200	23900	23800	25300	22400	27700	8060	37200	38900	38800
29	37800	44200	24200	24000	---	25300	23000	27600	6000	37300	39000	38900
30	37900	44400	24200	24000	---	25300	23400	27600	9100	37400	39100	39000
31	37900	---	24300	24000	---	24200	---	27800	---	37500	39000	---
TOTAL	1123600	1271400	907800	740300	665600	646100	506200	749600	600860	879400	1184100	1149600
MEAN	36250	42380	29280	23880	23770	20840	16870	24180	20030	28370	38200	38320
MAX	38000	44600	44600	24200	24000	25600	23400	27800	28800	37500	39100	39100
MIN	33500	37800	24200	21400	23200	15000	9170	19300	6000	12100	37200	36800
AC-FT	2229000	2522000	1801000	1468000	1320000	1282000	1004000	1487000	1192000	1744000	2349000	2280000

CAL YR 1982 TOTAL 10080000 MEAN 27620 MAX 44600 MIN 9900 AC-FT 19990000
WTR YR 1983 TOTAL 10424560 MEAN 28560 MAX 44600 MIN 6000 AC-FT 20680000

06471000 JAMES RIVER AT COLUMBIA, SD

LOCATION.--Lat 45°36'13", long 98°18'36", in NW¼NW¼ sec.33, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 20 ft downstream from highway bridge, 0.6 mi south of Columbia, 0.9 mi downstream from Chicago and North Western Transportation Company bridge, 0.3 mi upstream from Elm River, and 12.7 mi downstream from Columbia Road Dam.

DRAINAGE AREA.--7,050 mi², approximately, of which about 3,000 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,270 ft, from topographic map. From Oct. 1, 1945, to Oct. 4, 1957, nonrecording gage. From Oct. 5, 1957, to Sept. 30, 1980, water-stage recorder. Both gages described above at site 3.3 mi upstream from present site and at different datum.

REMARKS.--Records fair except those for winter periods and/or backwater from Elm River, Oct. 9 to Nov. 4 and Nov. 12 to Mar. 28, which are poor. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 168 mi upstream since May 1953.

AVERAGE DISCHARGE.--38 years, 110 ft³/s (79,700 acre-ft/yr); median of yearly mean discharges, 67 ft³/s (48,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,420 ft³/s May 24, 25, 1950 (gage height, 16.89 ft), from graph based on gage readings; maximum gage height, 17.09 ft Apr. 22, 1969; maximum daily reverse flow, 1,860 ft³/s Apr. 8, 1952, backwater from Elm River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 853 ft³/s at 1430 hours, Apr. 6 (gage height, 14.12 ft); maximum daily reverse flow, 600 ft³/s Mar. 14 (backwater from Elm River).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	170	125	2.5	.00	.30	714	592	256	152	439	206
2	78	175	130	2.0	.00	.30	720	588	250	152	434	198
3	76	185	135	1.5	.00	.35	735	581	243	155	429	195
4	74	187	135	1.4	.00	.50	794	574	231	159	421	192
5	73	186	135	1.3	.00	1.0	836	564	210	159	414	191
6	73	183	135	1.3	.10	1.7	851	559	205	159	404	191
7	72	178	130	1.0	.15	2.0	847	557	200	157	388	188
8	71	174	127	.80	.20	2.3	833	546	189	162	373	186
9	70	171	117	.65	.14	4.5	823	523	179	168	349	183
10	73	169	112	.55	.13	-20	814	510	172	174	333	180
11	75	166	106	.40	.13	-100	797	504	160	178	313	179
12	77	140	103	.40	.15	-300	788	502	153	183	292	179
13	78	140	100	.30	.15	-500	798	495	146	190	279	177
14	80	138	96	.20	.15	-600	799	485	137	198	263	168
15	81	133	93	.10	.30	-500	786	470	131	207	246	158
16	83	130	92	.05	.40	-300	778	463	130	231	234	147
17	85	132	92	.00	.45	-100	760	458	132	257	215	140
18	89	138	92	.00	.45	.00	743	446	132	299	198	133
19	91	140	92	.00	.40	50	721	432	131	330	186	127
20	93	135	90	.00	.35	100	708	423	132	345	194	125
21	96	130	60	.00	.35	200	693	409	132	364	204	124
22	100	125	50	.00	.30	300	683	393	131	382	212	123
23	110	125	25	.00	.30	440	673	374	129	402	221	125
24	120	122	16	.00	.30	570	661	358	128	423	242	124
25	125	122	12	.00	.20	595	644	344	127	437	244	124
26	130	120	10	.00	.20	620	642	329	128	440	244	125
27	135	120	9.5	.00	.25	645	624	310	129	439	238	126
28	145	120	8.5	.00	.25	675	618	289	131	444	233	125
29	150	120	6.8	.00	---	698	609	274	141	448	227	123
30	155	120	4.0	.00	---	702	601	264	146	448	225	129
31	165	---	3.0	.00	---	706	---	260	---	444	217	---
TOTAL	3001	4394	2461.8	14.45	5.80	3893.95	22093	13876	4841	8686	8911	4691
MEAN	96.8	146	79.4	.47	.21	126	736	448	161	280	287	156
MAX	165	187	135	2.5	.45	706	851	592	256	448	439	206
MIN	70	120	3.0	.00	.00	-600	601	260	127	152	186	123
AC-FT	5950	8720	4880	29	12	7720	43820	27520	9600	17230	17670	9300

CAL YR 1982 TOTAL 58310.00 MEAN 160 MAX 940 MIN -800 AC-FT 115700
WTR YR 1983 TOTAL 76869.00 MEAN 211 MAX 851 MIN -600 AC-FT 152500

06471000 JAMES RIVER AT COLUMBIA, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-64, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to September 1981.
WATER TEMPERATURES: October 1966 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,500 micromhos Mar. 1, 1974, Jan. 27-29, Jan. 31, 1979; minimum daily, 240 micromhos Mar. 17, 1972.
WATER TEMPERATURES: Maximum daily, 32.0°C June 29, July 10, 1970; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT											
07...	1345	72	760	--	8.5	--	--	--	--	--	--
NOV											
10...	1400	170	690	8.1	3.0	5.0	5.7	E13	160	240	0
DEC											
08...	1335	127	900	--	.0	--	--	--	--	--	--
JAN											
06...	1030	1.3	1440	7.7	.0	32	3.2	140	E34	520	0
FEB											
09...	1155	.14	1680	--	.5	--	--	--	--	--	--
MAR											
24...	1320	575	830	--	.5	--	--	--	--	--	--
29...	1630	701	600	7.8	3.0	10	14.0	--	--	210	13
APR											
13...	1550	800	470	--	3.0	--	--	--	--	--	--
MAY											
18...	1500	445	630	7.5	15.0	4.0	--	520	810	230	0
JUN											
21...	1035	132	690	--	23.0	--	--	--	--	--	--
JUL											
13...	1800	190	1760	7.7	27.0	2.0	4.3	K40	340	240	0
26...	1205	441	660	--	24.0	--	--	--	--	--	--
AUG											
24...	1605	244	610	--	26.0	--	--	--	--	--	--
SEP											
28...	1305	124	710	7.7	17.0	6.7	6.6	210	420	240	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT											
07...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	48	29	65	36	2	13	110	272	22	.30	11
DEC											
08...	--	--	--	--	--	--	--	--	--	--	--
JAN											
06...	110	59	120	32	2	20	210	523	49	.30	17
FEB											
09...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	--	--	--	--	--	--	--	--	--	--	--
29...	45	23	49	33	2	11	110	195	23	.10	6.6
APR											
13...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	49	26	52	31	2	15	97	232	17	.20	1.3
JUN											
21...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	50	29	61	34	2	15	93	286	18	.20	18
26...	--	--	--	--	--	--	--	--	--	--	--
AUG											
24...	--	--	--	--	--	--	--	--	--	--	--
SEP											
28...	51	28	53	30	2	16	110	236	17	.50	23

E Estimated.

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO4) (71886)
OCT											
07...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	473	460	.64	217	<.100	.110	.14	1.7	.080	.120	.37
DEC											
08...	--	--	--	--	--	--	--	--	--	--	--
JAN											
06...	834	900	1.1	3.0	<.100	.300	.39	2.0	.050	.200	.61
FEB											
09...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	--	--	--	--	--	--	--	--	--	--	--
29...	388	390	.53	734	.790	.390	.50	2.1	.060	.140	.43
APR											
13...	--	--	--	--	--	--	--	--	--	--	--
MAY											
18...	410	400	.56	493	<.100	.200	.26	1.4	.280	.110	.34
JUN											
21...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	470	460	.64	241	.150	.140	.18	1.8	.360	.380	1.1
26...	--	--	--	--	--	--	--	--	--	--	--
AUG											
24...	--	--	--	--	--	--	--	--	--	--	--
SEP											
28...	456	450	.62	153	.450	.300	.39	2.2	.060	.100	.31

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
NOV											
10...	1400	--	3	--	<1	--	<1	<3	--	1	--
MAR											
29...	1630	--	2	--	<1	--	<1	<3	--	3	--
MAY											
18...	1500	--	3	--	<1	--	<1	<3	--	5	--
SEP											
28...	1305	--	2	--	<1	--	<1	<3	--	1	--

DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV											
10...	8	--	<1	--	11	--	<.1	--	<1	--	14
MAR											
29...	52	--	<1	--	26	--	.2	--	<1	--	150
MAY											
18...	15	--	7	--	34	--	<.1	--	<1	--	30
SEP											
28...	9	--	<1	--	150	--	.2	--	<1	--	10

< Less than.

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
OCT											
07...	1345	72	--	--	--	--	--	--	--	--	--
NOV											
10...	1400	170	17	7.8	84	--	--	--	--	--	--
DEC											
08...	1335	127	--	--	--	--	--	--	--	--	--
JAN											
06...	1030	1.3	--	--	--	--	--	--	--	--	--
FEB											
09...	1155	.14	--	--	--	--	--	--	--	--	--
MAR											
24...	1320	575	--	--	--	--	--	--	--	--	--
29...	1630	701	--	--	--	--	--	--	--	--	--
APR											
13...	1550	800	--	--	--	--	--	--	--	--	--
MAY											
18...	1500	445	--	--	--	--	--	--	--	--	--
JUN											
21...	1035	132	--	--	--	--	--	--	--	--	--
JUL											
13...	1800	190	--	--	--	--	--	--	--	--	--
26...	1205	441	--	--	--	--	--	--	--	--	--
AUG											
24...	1605	244	--	--	--	--	--	--	--	--	--
SEP											
28...	1305	124	--	--	--	--	--	--	--	--	--

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW¼SE¼ sec.33, T.129 N., R.62 W., Dickey County, ND, Hydrologic Unit 10160004, on left bank 0.4 mi upstream from State line, 7.8 mi northeast of Frederick, SD, and 15.7 mi upstream from mouth.

DRAINAGE AREA.--750 mi², approximately, of which about 270 mi² is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,365 ft, from topographic map. Prior to June 14, 1962, nonrecording gage at site 0.4 mi downstream at datum 0.94 ft lower.

REMARKS.--Records good except those for winter period, Dec. 11 to Mar. 19, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--27 years, 20.2 ft³/s (14,630 acre-ft/yr); median of yearly mean discharges, 11 ft³/s (7,970 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft³/s Apr. 11, 1969; maximum gage height, 16.05 ft Apr. 11, 1969 (backwater from ice); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 9	--	*a850	*a9.76	Apr. 3	1700	196	5.65

a Ice jam.
No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	3.4	1.0	.43	.11	.01	36	26	1.4	.50	2.0	.00
2	.00	3.4	1.2	.41	.10	.02	40	25	1.1	.50	1.2	.00
3	.00	3.0	1.1	.40	.09	.04	152	22	1.2	.65	.92	.00
4	.00	2.3	1.1	.39	.08	.50	174	21	1.3	.92	.65	.00
5	.00	2.1	1.2	.39	.07	2.0	143	19	1.1	.85	.57	.00
6	.00	1.6	1.1	.38	.06	7.0	125	19	1.0	.74	.57	.00
7	.00	1.4	1.1	.36	.05	35	98	17	.92	.57	.50	.00
8	.00	1.2	1.2	.35	.04	130	88	14	.78	.50	.42	.00
9	.27	1.2	1.1	.34	.03	700	80	11	.74	.30	.27	.00
10	.65	1.8	1.2	.32	.05	500	69	12	.65	.19	.21	.00
11	.42	2.1	1.1	.31	.06	400	60	13	.61	.12	.14	.00
12	.33	2.0	1.1	.30	.07	500	57	14	.78	.06	.07	.00
13	.24	1.8	1.1	.29	.08	550	59	13	3.0	.01	.05	.00
14	.21	2.0	1.0	.28	.08	500	59	13	1.8	.00	.02	.00
15	.19	1.8	.95	.27	.08	450	41	13	1.3	.00	.00	.00
16	.11	1.6	.80	.26	.08	380	36	12	1.2	.12	.02	.00
17	.11	1.6	.70	.25	.07	320	33	10	1.2	.24	.05	.00
18	.10	1.5	.65	.24	.06	270	32	9.6	1.2	.85	.02	.00
19	.10	1.5	.61	.23	.05	240	32	9.2	.78	.74	.05	.00
20	.07	2.1	.59	.23	.04	220	35	8.4	.65	.50	.05	.00
21	.05	2.0	.57	.22	.04	175	36	7.7	.69	.36	.04	.00
22	.04	2.0	.55	.21	.03	105	38	8.0	.78	.30	.04	.00
23	.02	1.6	.54	.20	.03	74	40	6.9	.69	.21	.02	.00
24	.00	1.4	.53	.20	.03	64	41	6.9	.57	.14	.00	.00
25	.00	1.4	.51	.19	.02	55	39	5.0	.46	.10	.01	.00
26	.69	1.3	.50	.17	.01	48	40	4.0	.46	.05	.00	.00
27	5.0	1.1	.50	.16	.01	44	36	4.0	.42	.01	.01	.00
28	7.7	1.1	.48	.15	.01	38	33	4.0	.39	.00	.00	.00
29	6.4	1.0	.47	.14	---	35	30	3.2	.39	2.9	.00	.00
30	5.7	.92	.46	.13	---	33	28	2.7	.46	19	.00	.00
31	4.3	---	.45	.12	---	33	---	2.1	---	5.3	.00	---
TOTAL	32.70	53.22	25.46	8.32	1.53	5908.57	1810	355.7	28.02	36.73	7.90	.00
MEAN	1.05	1.77	.82	.27	.055	191	60.3	11.5	.93	1.18	.25	.000
MAX	7.7	3.4	1.2	.43	.11	700	174	26	3.0	19	2.0	.00
MIN	.00	.92	.45	.12	.01	.01	28	2.1	.39	.00	.00	.00
AC-FT	65	106	50	17	3.0	11720	3590	706	56	73	16	.00

CAL YR 1982 TOTAL 14779.91 MEAN 40.5 MAX 1780 MIN .00 AC-FT 29320
WTR YR 1983 TOTAL 8268.15 MEAN 22.7 MAX 700 MIN .00 AC-FT 16400

06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45°39'22", long 98°29'48", in SW¼NW¼ sec.12, T.125 N., R.64 W., Brown County, Hydrologic Unit 10160004, on right bank 12 ft downstream from highway bridge, 0.5 mi north of Westport, 0.7 mi upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 9.3 mi downstream from Willow Creek, and 30.4 mi upstream from mouth.

DRAINAGE AREA.--1,680 mi^2, approximately, of which about 510 mi^2 is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,309.3 ft National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1951, and Apr. 8 to Sept. 9, 1952, nonrecording gage 12 ft upstream at same datum. Aug. 6, 1951, to Apr. 7, 1952, water-stage recorder at present site and datum.

REMARKS.--Records good except those for winter period, Mar. 6-11, which are poor. Flow regulated for Aberdeen municipal water supply by Elm Lake and other small reservoirs upstream, combined capacity, about 16,000 acre-ft. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 46.6 ft^3/s (33,760 acre-ft/yr); median of yearly mean discharges, 25 ft^3/s (18,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft^3/s Apr. 10, 1969 (gage height, 22.11 ft); no flow for many days in most years prior to 1960.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 10	2230	*a1050	*a9.31	Apr. 4	1645	409	6.72

a Backwater from ice.
Minimum daily discharge, 0.86 ft^3/s Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	7.2	8.1	4.5	4.1	3.7	48	41	5.2	4.7	1.0	1.7
2	7.2	8.2	9.5	4.2	3.9	3.6	54	38	4.7	4.5	1.2	1.6
3	6.8	7.5	9.6	4.2	3.9	3.7	341	34	4.7	4.8	1.3	1.3
4	7.2	7.9	8.7	4.2	3.8	3.8	396	31	4.5	4.4	1.3	1.4
5	6.8	6.0	8.4	4.3	3.8	5.7	358	30	4.0	4.2	1.2	1.4
6	11	6.1	8.0	4.5	3.7	20	288	30	4.0	4.5	1.3	1.2
7	10	7.4	7.6	4.3	3.8	35	243	28	4.1	4.5	1.3	1.5
8	8.6	7.1	7.1	4.2	3.8	30	199	25	5.0	4.4	1.2	1.3
9	24	6.9	6.9	4.4	3.8	100	183	21	7.0	4.2	1.2	1.0
10	25	9.5	6.4	4.3	4.7	850	156	19	5.1	4.2	1.1	2.5
11	16	8.8	5.8	3.9	4.9	800	136	21	4.4	3.8	.89	4.3
12	13	11	6.0	4.1	4.4	616	123	25	6.9	3.8	.86	5.1
13	12	6.1	5.7	4.3	4.5	593	113	23	10	4.0	.99	5.8
14	12	5.6	5.8	4.0	4.7	633	102	19	13	4.0	1.1	6.4
15	11	7.2	5.6	3.8	4.7	577	110	21	16	5.5	1.3	7.1
16	8.7	18	3.7	4.0	4.7	549	91	21	10	8.6	2.1	6.8
17	8.9	14	4.1	3.9	4.4	495	68	19	8.0	11	3.8	7.2
18	8.3	10	6.5	3.8	4.3	437	61	16	6.6	4.9	14	6.8
19	7.2	8.9	5.7	3.8	4.2	410	58	16	5.6	4.4	16	6.1
20	6.4	9.6	5.6	3.8	4.0	382	55	15	5.2	4.1	19	6.4
21	6.2	8.5	5.6	3.6	4.0	309	55	15	5.1	3.8	17	5.6
22	6.7	7.9	5.6	3.8	4.1	185	57	13	4.9	2.2	11	5.6
23	7.1	7.7	5.2	3.9	4.3	186	56	11	4.5	1.8	6.3	6.0
24	7.6	7.9	4.7	4.4	3.7	125	56	11	4.5	1.5	5.0	6.3
25	7.8	8.0	5.0	4.1	3.7	86	57	9.5	4.5	1.5	3.7	6.4
26	8.2	7.4	5.1	3.9	4.0	68	60	10	5.3	1.4	2.7	6.3
27	8.1	7.7	5.3	3.9	4.1	57	56	9.7	4.4	1.3	2.1	6.5
28	7.9	8.0	4.7	4.0	3.7	49	50	8.4	4.4	2.0	1.6	7.0
29	8.1	7.9	4.7	4.3	---	45	47	6.8	5.0	1.6	1.5	5.6
30	6.4	7.9	4.5	4.1	---	42	42	6.1	4.7	1.5	1.8	7.5
31	6.9	---	4.5	3.9	---	45	---	6.2	---	1.2	1.7	---
TOTAL	296.0	251.9	189.7	126.4	115.7	7744.5	3719	599.7	181.3	118.3	126.54	139.7
MEAN	9.55	8.40	6.12	4.08	4.13	250	124	19.3	6.04	3.82	4.08	4.66
MAX	25	18	9.6	4.5	4.9	850	396	41	16	11	19	7.5
MIN	4.9	5.6	3.7	3.6	3.7	3.6	42	6.1	4.0	1.2	.86	1.0
AC-FT	587	500	376	251	229	15360	7380	1190	360	235	251	277

CAL YR 1982 TOTAL 31637.17 MEAN 86.7 MAX 3600 MIN .41 AC-FT 62750
WTR YR 1983 TOTAL 13608.74 MEAN 37.3 MAX 850 MIN .86 AC-FT 26990

06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44°59'54", long 98°28'50", in NW¼NW¼NE¼ sec.36, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank at downstream side of highway bridge, 0.9 mi east of Ashton, 6.1 mi upstream from Snake Creek, and 14.2 mi upstream from Turtle Creek.

DRAINAGE AREA.--11,000 mi^2, approximately, of which about 4,190 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1209: 1947.

GAGE.--Water-stage recorder. Datum of gage is 1,244.4 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 26, 1957, nonrecording gage at present site and Nov. 26, 1957, to Oct. 7, 1974, water-stage recorder at site 900 ft upstream all at present datum.

REMARKS.--Records good except those for winter periods, Nov. 21-28 and Dec. 6 to Mar. 14, which are poor. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 285 mi upstream since May 1953. Occasional backwater and reverse flow caused by Snake Creek during most years. Several observations of specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 159 ft^3/s (115,200 acre-ft/yr); median of yearly mean discharges, 110 ft^3/s (79,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,680 ft^3/s Apr. 24, 1969 (gage height, 20.63 ft); maximum gage height, 21.17 ft Apr. 13, 1969 (backwater from Snake Creek); maximum daily reverse flow, 2,100 ft^3/s Apr. 9, 1969 (backwater from Snake Creek).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 828 ft^3/s at 1330 hours, Apr. 24 (gage height, 10.02 ft); minimum daily discharge, 2.9 ft^3/s Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	121	150	65	3.3	7.0	647	780	448	156	343	239
2	65	124	151	59	3.2	9.0	661	767	437	152	357	233
3	65	128	151	53	3.0	12	676	753	421	147	370	226
4	64	132	146	47	3.0	18	688	737	412	142	378	222
5	63	136	145	41	3.0	23	697	729	396	137	385	220
6	65	140	140	37	3.0	29	705	722	385	132	396	215
7	66	143	140	32	3.0	31	716	712	372	128	407	208
8	67	145	137	29	3.1	35	721	706	356	123	412	201
9	74	148	134	26	3.2	38	726	698	348	120	417	195
10	76	153	134	24	3.2	41	730	692	335	116	422	195
11	77	155	130	22	3.3	45	737	683	323	113	424	191
12	77	167	128	19	3.3	50	748	677	305	113	429	183
13	77	167	125	18	3.3	55	761	671	302	110	436	179
14	79	167	123	16	3.3	57	771	665	299	108	434	173
15	81	167	122	15	3.2	73	781	658	291	104	432	171
16	83	167	121	13	3.2	91	788	650	286	99	439	169
17	86	166	120	12	3.1	132	796	640	281	115	434	166
18	87	167	117	11	3.0	189	804	627	267	131	422	162
19	90	167	112	10	3.0	236	810	616	252	155	410	160
20	94	162	108	9.5	3.0	286	815	601	240	190	398	156
21	95	160	105	8.7	3.0	325	820	588	230	223	383	153
22	98	158	105	8.0	3.0	354	821	573	230	238	368	147
23	99	156	103	7.0	3.0	401	823	559	220	244	353	141
24	101	154	103	6.5	3.2	431	824	545	209	249	336	135
25	102	152	102	6.0	3.4	457	826	533	200	256	317	133
26	104	150	100	5.5	3.7	490	823	517	190	265	301	131
27	105	150	97	5.0	4.2	520	816	497	181	284	287	130
28	109	147	90	4.5	5.0	542	810	489	172	293	274	134
29	112	146	85	4.0	---	574	802	486	166	303	264	129
30	114	148	78	3.8	---	613	793	471	166	321	263	131
31	118	---	72	3.5	---	634	---	458	---	330	248	---
TOTAL	2659	4543	3674	621.0	91.2	6798.0	22936	19500	8722	5597	11539	5227
MEAN	85.8	151	119	20.0	3.26	219	765	629	291	181	372	174
MAX	118	167	151	65	5.0	634	826	780	448	330	439	239
MIN	63	121	72	3.5	3.0	7.0	647	458	166	99	248	129
AC-FT	5270	9010	7290	1230	181	13480	45490	38680	17300	11100	22890	10370

CAL YR 1982 TOTAL 80977.30 MEAN 222 MAX 1000 MIN .00 AC-FT 160600
WTR YR 1983 TOTAL 91907.20 MEAN 252 MAX 826 MIN 3.0 AC-FT 182300

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1977 to current year.

REMARKS.--No flow Oct. 1 to Feb. 15. Temperatures collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum observed daily, 30.0°C July 19-21, Aug. 3, 5, 6, 1982; minimum daily, 0.0°C on several days during November to December 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum observed daily, 30.0°C July 19-21, Aug. 3, 5, 6; minimum observed daily, 0.0°C Nov. 15, 22, 23.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.0					4.0		---	---	27.0	27.0
2	---	7.0					3.0		---	---	28.0	28.0
3	---	5.0					---		---	---	30.0	28.0
4	---	2.0					4.0		---	---	---	---
5	---	1.0					4.0		---	23.0	30.0	---
6	---	3.0					4.0		---	25.0	30.0	21.0
7	---	---					4.0		---	26.0	---	25.0
8	10.0	2.0					6.0		---	28.0	29.0	27.0
9	10.0	2.0					---		---	28.0	28.0	23.0
10	---	2.0					---		---	---	28.0	21.0
11	---	2.0					---		---	27.0	27.0	---
12	9.0	1.0					---		---	26.0	26.0	18.0
13	10.0	1.0					---		---	28.0	26.0	19.0
14	11.0	---					---		---	28.0	---	17.0
15	11.0	.0					---		---	28.0	27.0	16.0
16	11.0	1.0					---		---	26.0	26.0	15.0
17	---	1.0					---		---	---	27.0	17.0
18	12.0	1.0					---		---	28.0	27.0	---
19	9.0	2.0					---		---	30.0	27.0	14.0
20	8.0	1.0					---		---	30.0	25.0	11.0
21	8.0	---					---		25.0	30.0	---	10.0
22	8.0	.0					---		25.0	29.0	25.0	10.0
23	8.0	.0					---		26.0	28.0	25.0	11.0
24	---	---					---		27.0	---	26.0	13.0
25	10.0	---					---		---	28.0	27.0	---
26	10.0	---					---		---	27.0	27.0	15.0
27	10.0	---					---		26.0	27.0	27.0	19.0
28	9.0	---					---		24.0	27.0	---	18.0
29	9.0	---					---		22.0	28.0	28.0	15.0
30	7.0	---					---		23.0	---	27.0	16.0
31	---	---					---		---	---	27.0	---

06475000 JAMES RIVER NEAR REDFIELD, SD

LOCATION.--Lat 44°54'33", long 98°27'34", in NW¼NE¼ sec.31, T.117 N., R.63 W., Spink County, Hydrologic Unit 10160006, on right bank 0.6 mi downstream from county highway bridge, 3.3 mi northeast of Redfield and 1.3 mi downstream from Turtle Creek.

DRAINAGE AREA.--14,800 mi^2, approximately, of which about 4,600 mi^2 is probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,239.2 ft National Geodetic Vertical Datum of 1929. From March 1950 to July 25, 1951, nonrecording gage. From July 26, 1951, to Sept. 30, 1981, water-stage recorder. Both gages described above at site 3.9 mi downstream from present site and at different datum.

REMARKS.--Records good except those for winter period, Jan. 12 to Mar. 10, which are poor. Flow regulated by Arrowwood and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 303 mi upstream since May 1953. Low flow affected by wind at times. Flow below 100 ft^3/s for water years 1964-79 may be unreliable because of wind effect. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 188 ft^3/s (136,200 acre-ft/yr); median of yearly mean discharges, 130 ft^3/s (94,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,310 ft^3/s Apr. 13, 1969 (gage height, 24.93 ft); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 895 ft^2/s at 1800 hours, Apr. 25 (gage height, 8.28 ft); minimum daily discharge, 3.0 ft^3/s Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	134	163	83	3.6	7.5	646	846	414	223	337	259
2	74	137	160	72	3.3	10	652	818	406	216	351	250
3	74	137	159	63	3.1	14	661	805	393	211	360	242
4	74	139	159	57	3.0	19	664	786	378	199	365	237
5	74	143	155	50	3.1	25	674	750	362	191	373	233
6	77	147	155	46	3.1	32	699	740	346	186	380	226
7	77	151	151	40	3.2	48	768	730	338	180	389	220
8	82	150	155	35	3.2	45	798	720	327	173	397	218
9	94	154	158	32	3.3	45	820	710	315	165	402	208
10	95	160	152	29	3.4	52	838	700	308	159	408	203
11	91	160	142	25	3.4	58	823	690	295	148	409	200
12	92	162	144	22	3.4	56	750	680	292	144	416	196
13	91	158	147	21	3.4	59	760	680	301	141	424	190
14	93	183	147	19	3.3	61	774	670	285	137	423	189
15	96	182	147	17	3.3	57	790	660	272	118	425	189
16	98	175	146	15	3.3	59	812	660	264	131	430	181
17	101	174	146	14	3.2	94	833	640	255	146	434	182
18	106	173	143	13	3.1	150	849	620	248	166	428	176
19	106	171	138	12	3.1	198	864	610	240	175	418	173
20	106	168	134	10	3.1	236	877	599	237	192	412	167
21	110	184	134	9.5	3.1	284	877	589	227	221	401	165
22	112	164	132	8.5	3.1	315	875	571	257	244	382	160
23	114	175	129	7.7	3.1	358	880	552	263	260	372	155
24	118	187	126	7.0	3.1	404	882	537	252	275	358	152
25	120	180	125	6.5	3.3	440	888	517	235	285	343	144
26	120	171	123	6.0	3.5	473	875	507	225	290	325	140
27	122	167	123	5.5	4.0	498	862	491	212	304	311	137
28	120	167	116	5.0	5.5	523	859	473	202	309	295	141
29	119	163	113	4.5	---	554	851	451	213	311	284	136
30	125	162	104	4.2	---	595	849	435	231	324	282	138
31	129	---	96	3.9	---	636	---	423	---	331	269	---
TOTAL	3085	4878	4324	743.3	93.6	6405.5	24052	19660	8593	6555	11603	5607
MEAN	99.5	163	139	24.0	3.34	207	802	634	286	211	374	187
MAX	129	187	163	83	5.5	636	888	846	414	331	434	259
MIN	74	134	96	3.9	3.0	7.5	648	423	202	118	269	136
AC-FT	6120	9680	8580	1470	186	12710	47710	39000	17040	13000	23010	11120

CAL YR 1982 TOTAL 90990.00 MEAN 249 MAX 1020 MIN .00 AC-FT 180500
WTR YR 1983 TOTAL 95599.40 MEAN 262 MAX 888 MIN 3.0 AC-FT 189600

06476000 JAMES RIVER AT HURON, SD

LOCATION.--Lat 44°21'49", long 98°11'56", in SW¼SE¼NE¼ sec.6, T.110 N., R.61 W., Beadle County, Hydrologic Unit 10160006, on right bank 15 ft upstream from city dam at Huron, 135 ft downstream from Chicago and North Western Transportation Co. bridge and 165 ft upstream from bridge on business loop U.S. Highway 14.

DRAINAGE AREA.--16,800 mi^2, approximately, of which about 4,790 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to September 1932, August 1943 to current year. Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at site about 100 ft downstream for period of open water each year July 1902 to June 1914 and for period March to June 1915-23 are in reports of U.S. Weather Bureau.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is 1,223.44 ft National Geodetic Vertical Datum of 1929. Aug. 29, 1928, to Mar. 15, 1929, nonrecording gage at site 100 ft downstream at about same datum. Mar. 16, 1929, to June 30, 1932, nonrecording gage 165 ft downstream at present datum. Aug. 3, 1943, to Oct. 17, 1951, nonrecording gage at site 15 ft downstream at present datum.

REMARKS.--Records good above 100 ft^3/s and fair below. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity 229,470 acre-ft, 365 mi upstream since May 1953. Satellite telemeter at station.

AVERAGE DISCHARGE.--44 years, 230 ft^3/s (166,600 acre-ft/yr); median of yearly mean discharges, 140 ft^3/s (101,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft^3/s Apr. 13, 1969 (gage height, 16.70 ft); no flow for long periods in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood between Apr. 11 and 13, 1881, reached a stage of 19.8 ft, from U.S. Weather Bureau publication. Flood of Mar. 22, 1922, reached a stage of 16.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 929 ft^3/s at 0915 hours, Apr. 13 (gage height, 9.99 ft); minimum daily discharge, 20 ft^3/s Feb. 11 and 12.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

8.77	0	9.40	292
8.80	6.8	9.80	680
9.00	62	10.00	960
9.2	147		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	131	140	99	27	37	671	814	426	229	243	255
2	94	139	136	95	26	36	642	792	375	250	242	242
3	89	142	147	92	24	37	623	762	405	258	266	253
4	90	143	143	88	24	37	639	735	431	242	269	260
5	91	136	163	85	23	40	657	726	416	219	275	250
6	87	133	152	81	23	39	663	745	394	198	281	242
7	92	140	147	79	22	79	667	749	373	177	286	225
8	102	138	147	76	22	45	671	645	356	184	304	213
9	116	141	145	69	21	55	707	521	325	171	294	226
10	138	148	144	67	21	51	713	680	308	153	311	230
11	182	168	136	63	20	48	683	816	291	153	315	204
12	203	179	134	60	20	45	746	731	295	158	303	203
13	182	161	131	57	22	45	887	686	321	142	326	188
14	180	153	128	54	24	48	792	670	323	131	331	185
15	180	144	131	52	24	62	667	642	327	116	344	182
16	153	139	129	46	26	65	707	632	304	131	362	181
17	146	142	128	44	27	65	719	608	278	126	379	169
18	143	145	127	42	29	72	740	621	265	131	392	170
19	150	147	126	41	33	75	751	627	250	136	399	176
20	135	160	125	39	33	90	788	610	262	136	379	163
21	129	166	123	37	32	86	827	569	245	147	386	159
22	125	161	121	37	32	103	841	593	256	153	372	150
23	123	134	120	37	34	131	833	545	261	158	353	130
24	122	155	118	33	33	153	793	554	231	153	345	134
25	120	152	113	31	30	198	746	525	226	177	332	134
26	110	149	113	29	31	266	875	478	236	171	336	132
27	112	148	116	30	36	385	833	520	240	205	339	119
28	119	147	110	30	37	428	826	514	250	205	311	131
29	129	145	110	29	---	402	807	496	247	221	297	128
30	129	143	107	28	---	493	806	465	235	240	286	121
31	132	---	105	27	---	570	---	447	---	243	270	---
TOTAL	3995	4429	4015	1677	736	4286	22320	19518	9132	5514	9928	5553
MEAN	129	148	130	54.1	27.0	138	744	630	304	178	320	185
MAX	203	179	163	99	37	570	887	816	431	258	399	260
MIN	87	131	105	27	20	36	623	447	226	116	242	119
AC-FT	7920	8780	7960	3330	1500	8500	44270	38710	18110	10940	19690	11020

CAL YR 1982 TOTAL 90415.30 MEAN 248 MAX 1110 MIN .00 AC-FT 179300
WTR YR 1983 TOTAL 91125.00 MEAN 250 MAX 887 MIN 20 AC-FT 180700

06476000 JAMES RIVER AT HURON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-52, 1956 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1956 to October 1970, September 1971 to current year.
WATER TEMPERATURES: September 1956 to October 1970, September 1971 to current year.

REMARKS.--No flow Oct. 1-13, 15-31, Nov. 1 to Feb. 21, Aug. 12. Samples collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,170 micromhos Mar. 14, 1965; minimum daily, 175 micromhos Mar. 30, Apr. 2, 1960.
WATER TEMPERATURES: Maximum daily, 31.0°C June 2, 1968; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 1,550 micromhos Feb. 28; minimum observed daily, 510 micromhos Apr. 5.
WATER TEMPERATURES: Maximum observed daily, 27.0°C July 19-24, Aug. 8-10; minimum observed daily, 0.0°C on many days during winter flow period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
NOV									
01...	1600	138	960	8.5	8.0	300	9	62	35
30...	1200	144	900	7.5	.0	280	0	55	34
DEC									
20...	1430	126	960	7.7	.5	320	0	64	39
JAN									
27...	1530	29	1220	7.4	1.0	430	39	88	50
FEB									
28...	1415	37	1170	8.3	5.0	370	32	76	44
MAR									
31...	1600	608	760	7.2	8.0	240	33	50	27
APR									
21...	1500	777	610	--	10.5	--	--	--	--
29...	1530	825	580	6.7	12.5	190	21	43	20
MAY									
31...	1200	436	680	7.8	16.0	250	12	55	27
JUN									
30...	1100	241	840	7.6	21.5	270	1	57	31
JUL									
28...	1430	199	1200	8.5	28.0	300	0	61	36
AUG									
22...	1505	388	710	8.0	25.0	240	0	51	28
SEP									
12...	1600	192	700	8.3	18.5	240	0	50	28

06476000 JAMES RIVER AT HURON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
NOV									
01...	87	37	2	14	290	180	33	.30	17
30...	80	37	2	16	298	140	32	.30	10
DEC									
20...	94	37	2	17	321	170	38	.30	11
JAN									
27...	120	37	3	19	387	250	49	.30	12
FEB									
28...	100	36	2	16	339	220	45	.30	9.6
MAR									
31...	72	39	2	9.5	203	150	41	.20	6.0
APR									
21...	--	--	--	--	--	--	--	--	--
29...	37	28	1	14	169	83	18	.20	8.1
MAY									
31...	59	32	2	15	237	110	24	.20	3.3
JUN									
30...	67	34	2	14	269	120	25	.20	12
JUL									
28...	150	50	4	18	315	220	96	.40	.5
AUG									
22...	64	34	2	20	261	88	24	.20	27
SEP									
12...	60	33	2	17	259	92	25	.20	27

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)
NOV								
01...	600	.82	225	.150	.210	.120	.090	.28
30...	550	.74	213	<.100	.230	.210	.180	.55
DEC								
20...	630	.85	210	<.100	.190	.150	.060	.18
JAN								
27...	820	1.1	64	<.100	.180	.100	.080	.25
FEB								
28...	710	.97	71	<.100	.110	.100	.080	.25
MAR								
31...	480	.65	784	<.100	.200	.100	.080	.25
APR								
21...	--	--	--	--	--	--	--	--
29...	320	.44	724	<.100	.170	.120	.080	.25
MAY								
31...	440	.59	513	<.100	.230	.150	.110	.34
JUN								
30...	490	.66	318	<.100	.350	.200	.170	.52
JUL								
28...	770	1.0	415	.140	.400	.240	.180	.55
AUG								
22...	460	.63	482	.140	.640	.550	.510	1.6
SEP								
12...	460	.62	236	.290	1.00	.300	.280	.86

< Less than.

06476000 JAMES RIVER AT HURON, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1000	920	890	1100	1460	1500	720	540	700	840	1200	710
2	990	930	880	1070	1450	1500	740	550	720	850	1140	720
3	980	920	830	1110	1480	1500	560	550	730	820	1140	720
4	990	910	850	1120	1500	1510	570	550	730	850	1120	720
5	980	920	850	1150	1500	1460	510	540	730	850	1090	720
6	980	910	850	1140	1500	1300	540	560	730	860	1020	720
7	980	920	850	1140	1500	1280	560	570	740	870	990	730
8	970	930	830	1120	1500	1240	630	570	750	880	960	740
9	930	920	880	1120	1500	1040	680	580	750	860	950	730
10	940	920	890	1140	1540	1030	730	590	760	870	920	740
11	910	900	950	1120	1500	1040	750	580	750	870	930	730
12	900	900	960	1120	1500	980	760	590	770	890	920	730
13	950	880	960	1160	1500	980	730	590	770	910	690	740
14	950	900	950	1170	1500	980	740	600	770	940	900	730
15	1020	900	970	1160	1500	930	750	610	770	960	860	730
16	980	910	1000	1180	1500	930	730	630	780	970	800	740
17	950	910	1000	1180	1490	930	680	620	780	950	760	730
18	950	920	1010	1180	1490	930	690	640	790	940	720	740
19	940	900	1020	1170	1480	1040	660	650	800	910	610	740
20	970	880	1040	1230	1480	1120	650	650	800	900	730	740
21	980	870	1040	1240	1480	1140	650	640	800	910	720	740
22	980	860	1040	1240	1480	1320	660	660	800	920	670	740
23	950	860	1000	1240	1480	1330	610	670	810	1000	690	740
24	950	860	1000	1260	1480	1340	620	670	820	1080	630	720
25	970	840	1000	1260	1490	1240	600	690	830	1080	630	710
26	950	900	1020	1270	1380	1110	610	670	830	1150	700	700
27	960	900	1020	1290	1430	1070	600	670	830	1150	670	720
28	960	910	1040	1290	1550	1080	600	680	840	1200	660	700
29	940	910	1080	1300	---	1160	600	680	840	1220	690	710
30	950	930	1080	1300	---	1160	580	690	810	1180	630	710
31	950	---	1140	1340	---	930	---	700	---	1180	630	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	7.0	.0	.0	.0	.0	5.0	11.0	15.0	23.0	25.0	25.0
2	13.0	7.0	.0	.0	.0	.0	4.0	10.0	15.0	23.0	25.0	25.0
3	13.0	5.0	1.0	.0	.0	5.0	5.0	10.0	15.0	23.0	26.0	25.0
4	13.0	3.0	.0	.0	.0	6.0	3.0	10.0	15.0	22.0	26.0	25.0
5	13.0	2.0	.0	.0	.0	6.0	3.0	12.0	15.0	22.0	26.0	25.0
6	12.0	2.0	.0	.0	.0	6.0	3.0	13.0	17.0	23.0	26.0	22.0
7	10.0	3.0	.0	.0	.0	5.0	4.0	12.0	17.0	23.0	26.0	19.0
8	10.0	1.0	.0	.0	.0	1.0	4.0	12.0	18.0	23.0	27.0	20.0
9	10.0	2.0	.0	.0	.0	.0	4.0	12.0	19.0	24.0	27.0	21.0
10	10.0	3.0	.0	.0	.0	.0	6.0	13.0	20.0	23.0	27.0	20.0
11	9.0	3.0	.0	.0	.0	.0	6.0	14.0	19.0	24.0	25.0	20.0
12	9.0	1.0	.0	.0	.0	.0	7.0	14.0	19.0	23.0	25.0	18.0
13	8.0	.0	.0	.0	.0	2.0	5.0	12.0	19.0	25.0	25.0	17.0
14	8.0	.0	.0	.0	.0	3.0	2.0	12.0	18.0	25.0	25.0	17.0
15	9.0	.0	.0	.0	.0	3.0	3.0	14.0	18.0	24.0	25.0	17.0
16	9.0	.0	.0	.0	.0	2.0	3.0	12.0	18.0	24.0	25.0	15.0
17	9.0	.0	.0	.0	.0	3.0	3.0	13.0	19.0	24.0	26.0	15.0
18	11.0	.0	.0	.0	.0	3.0	5.0	13.0	18.0	25.0	25.0	15.0
19	10.0	.0	.0	.0	.0	3.0	5.0	12.0	18.0	27.0	26.0	15.0
20	8.0	.0	.0	.0	.0	3.0	5.0	13.0	18.0	27.0	25.0	15.0
21	5.0	.0	.0	.0	.0	2.0	8.0	13.0	23.0	27.0	25.0	10.0
22	6.0	.0	.0	.0	.0	.0	8.0	14.0	24.0	27.0	25.0	10.0
23	7.0	.0	.0	.0	.0	2.0	8.0	15.0	23.0	27.0	25.0	10.0
24	8.0	.0	.0	.0	.0	3.0	10.0	16.0	25.0	27.0	24.0	10.0
25	8.0	.0	.0	.0	.0	3.0	10.0	15.0	25.0	26.0	24.0	10.0
26	9.0	.0	.0	.0	.0	2.0	12.0	16.0	26.0	26.0	26.0	13.0
27	9.0	.0	.0	.0	.0	1.0	11.0	18.0	24.0	26.0	26.0	13.0
28	8.0	.0	.0	.0	.0	2.0	12.0	18.0	24.0	26.0	26.0	15.0
29	7.0	.0	.0	.0	---	1.0	11.0	17.0	23.0	25.0	25.0	15.0
30	8.0	.0	.0	.0	---	1.0	11.0	17.0	23.0	25.0	25.0	15.0
31	7.0	---	.0	.0	---	3.0	---	15.0	---	25.0	25.0	---

06476500 SAND CREEK NEAR ALPENA, SD

LOCATION.--Lat 44°09'15", long 98°26'06", in NE¼NE¼ sec.19, T.108 N., R.63 W., Jerauld County, Hydrologic Unit 10160006, on left bank 5 ft downstream from highway bridge, 4.0 mi southwest of Alpena, 7.0 mi upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 10.5 mi upstream from interlink with Cain Creek.

DRAINAGE AREA.--240 mi^2, approximately.

PERIOD OF RECORD.--March 1950 to current year.

REVISED RECORDS.--WSP 1309: 1950(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,315 ft. Prior to Sept. 17, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 8.18 ft^3/s (5,930 acre-ft/yr); median of yearly mean discharges, 3.8 ft^3/s (2,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,240 ft^3/s Mar. 28, 1960 (gage height, 13.35 ft); maximum gage height, 14.1 ft Mar. 28, 1950 (backwater from ice); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45 ft^3/s at 1630 hours, May 15 (gage height, 8.77 ft); no peak above base of 50 ft^3/s; no flow for many days.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

7.4	0	7.9	3.1
7.5	.12	8.1	9.1
7.6	.40	8.3	16
7.7	.88	8.8	43
7.8	1.7		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.0	.66	.22	.12	1.2	7.3	5.2	2.3	12	.12	.00
2	.00	1.8	.66	.23	.14	1.1	9.4	4.5	2.2	10	.07	.00
3	.00	1.7	.66	.29	.10	1.1	10	3.7	1.9	8.8	.04	.00
4	.00	1.7	.66	.29	.10	1.1	24	3.7	1.6	7.4	.00	.00
5	.00	1.6	.72	.31	.09	1.6	31	3.4	1.6	6.3	.00	.00
6	.00	1.6	.72	.34	.07	2.2	24	3.1	1.5	4.9	.00	.00
7	.00	1.6	.66	.38	.07	1.7	19	2.9	1.4	3.9	.00	.00
8	.00	1.5	.61	.38	.06	1.5	16	2.5	1.3	2.4	.00	.00
9	.00	1.4	.56	.51	.05	2.3	14	3.0	1.2	2.0	.00	.00
10	.47	1.5	.49	.58	.03	2.3	12	2.8	1.2	1.8	.00	.00
11	2.7	1.5	.43	.52	.02	2.2	11	3.3	1.1	1.4	.00	.00
12	6.7	1.2	.34	.52	.03	2.3	10	4.3	1.4	1.2	.00	.00
13	5.8	1.3	.33	.57	.07	2.3	12	3.7	2.4	1.0	.00	.00
14	4.6	1.3	.33	.49	.12	2.3	13	4.9	2.1	.82	.00	.00
15	3.4	1.2	.28	.44	.18	4.3	12	35	2.1	.66	.00	.00
16	2.7	1.2	.20	.40	.30	5.2	11	38	2.1	.82	.00	.00
17	2.5	1.1	.20	.35	.39	5.2	12	26	2.1	.72	.00	.00
18	2.7	1.1	.23	.21	.44	4.3	12	22	2.2	.61	.00	.00
19	3.4	1.1	.26	.12	.44	4.0	11	19	2.1	.56	.00	.00
20	3.7	1.1	.26	.10	.44	3.4	10	16	2.3	.48	.00	.00
21	3.4	1.1	.23	.11	.33	3.4	12	13	2.6	.36	.00	.00
22	2.9	1.0	.23	.12	.33	3.4	14	9.8	2.8	.30	.00	.00
23	3.0	.88	.21	.12	.40	3.1	12	8.0	2.8	.27	.00	.00
24	2.9	.76	.25	.12	.48	3.1	9.9	6.3	2.8	.27	.00	.00
25	2.7	.76	.27	.10	.70	3.7	9.1	5.5	2.6	.21	.00	.00
26	2.8	.66	.24	.10	.82	4.3	8.1	4.6	2.2	.14	.00	.00
27	2.7	.52	.26	.12	.90	4.9	7.4	3.7	2.0	.16	.00	.00
28	2.4	.56	.24	.15	.82	4.0	6.9	3.2	4.3	.18	.00	.00
29	2.3	.54	.21	.12	---	4.3	6.1	2.7	9.1	.16	.00	.00
30	2.0	.58	.18	.12	---	5.2	5.3	2.5	11	.30	.00	.00
31	2.1	---	.18	.12	---	5.8	---	2.4	---	.24	.00	---
TOTAL	67.87	35.84	11.76	8.55	8.04	96.8	371.5	268.7	78.3	70.36	.23	.00
MEAN	2.19	1.19	.38	.28	.29	3.12	12.4	8.67	2.61	2.27	.007	.000
MAX	6.7	2.0	.72	.58	.90	5.8	31	38	11	12	.12	.00
MIN	.00	.52	.18	.10	.02	1.1	5.3	2.4	1.1	.14	.00	.00
AC-FT	135	71	23	17	16	192	737	533	155	140	.5	.00

CAL YR 1982 TOTAL 568.29 MEAN 1.56 MAX 27 MIN .00 AC-FT 1130
WTR YR 1983 TOTAL 1017.95 MEAN 2.79 MAX 38 MIN .00 AC-FT 2020

06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43°58'26", long 98°04'14", in SW¼SW¼NW¼ sec.20, T.106 N., R.60 W., Sanborn County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 3.8 mi southeast of Forestburg, 5.4 mi downstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 6.1 mi downstream from Sand Creek.

DRAINAGE AREA.--18,600 mi^2, approximately, of which about 4,790 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,208.34 ft National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Sept. 5, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Dec. 8 to Feb. 25, which are poor. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 408 mi upstream since May 1953. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 270 ft^3/s (195,600 acre-ft/yr); median of yearly mean discharges, 140 ft^3/s (101,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft^3/s Apr. 9, 1969 (gage height, 17.16 ft); no flow at times in 1950, 1955, 1959, 1961, 1970, 1976, 1977, 1981, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in March 1920 and March 1922 reached a stage of about 18 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 925 ft^3/s at 1700 hours, Apr. 14 (gage height, 7.87 ft); minimum daily discharge, 15 ft^3/s Feb. 12 and 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	127	194	115	26	60	612	840	455	279	249	283
2	84	132	193	115	24	61	668	835	436	264	250	267
3	101	137	187	115	23	59	704	830	406	253	252	270
4	108	141	173	110	22	53	716	811	380	251	261	268
5	102	143	176	110	20	53	722	790	381	253	269	270
6	97	142	178	105	19	55	736	768	391	247	275	274
7	98	140	147	105	19	57	757	756	388	230	290	261
8	96	140	140	100	18	60	772	752	375	216	310	250
9	110	145	140	95	17	65	780	730	363	209	311	238
10	138	152	140	90	17	70	786	667	345	201	313	249
11	157	164	135	85	16	82	804	648	328	192	321	245
12	168	168	135	80	15	88	816	722	314	183	325	231
13	202	141	135	75	15	112	870	766	321	170	325	223
14	216	197	135	70	16	118	919	743	345	157	327	226
15	211	226	135	65	17	107	923	711	344	143	332	225
16	205	210	135	58	19	105	888	684	341	140	342	221
17	193	190	130	53	21	115	872	666	336	165	391	220
18	183	177	130	50	24	120	875	653	322	176	395	206
19	183	173	130	45	27	124	877	643	303	152	391	199
20	184	185	130	42	30	126	879	642	288	141	397	196
21	177	179	130	40	35	121	884	637	287	135	391	191
22	163	161	125	38	40	121	891	616	284	138	386	178
23	154	192	125	35	55	126	901	602	272	146	382	167
24	146	197	125	33	65	146	897	590	260	154	371	159
25	140	221	125	32	60	189	874	571	249	164	363	154
26	135	209	120	31	59	245	855	555	253	172	351	151
27	124	197	120	30	59	310	848	526	249	183	344	148
28	117	196	120	28	56	357	864	509	260	201	342	146
29	116	197	120	28	---	422	865	508	269	214	328	146
30	117	196	120	27	---	479	852	499	281	223	319	143
31	123	---	120	27	---	550	---	478	---	238	306	---
TOTAL	4424	5175	4348	2032	834	4756	24707	20748	9826	5990	10209	6405
MEAN	143	173	140	65.5	29.8	153	824	669	328	193	329	214
MAX	216	226	194	115	65	550	923	840	455	279	397	283
MIN	76	127	120	27	15	53	612	478	249	135	249	143
AC-FT	8780	10260	8620	4030	1650	9430	49010	41150	19490	11880	20250	12700

CAL YR 1982 TOTAL 92499.33 MEAN 253 MAX 1040 MIN .00 AC-FT 183500
WTR YR 1983 TOTAL 99454.00 MEAN 272 MAX 923 MIN 15 AC-FT 197300

06477000 JAMES RIVER NEAR FORESTBURG, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

REMARKS.--Records poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 300 mg/L Mar. 1, 1982, and Aug. 17, 1983; minimum daily, 0 mg/L on many days in 1982.
SEDIMENT LOADS: Maximum daily, 445 tons Apr. 9, 1982; minimum daily, 0 ton on many days in 1982.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 300 mg/L Aug. 17; minimum daily, 10 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 323 tons Apr. 26; minimum daily, 0.41 ton Feb. 12 and 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	1150	101	16.0	--	--	--
NOV						
05...	1100	143	1.5	51	20	69
DEC						
02...	1050	194	1.0	--	--	--
JAN						
11...	1135	86	1.0	--	--	--
FEB						
14...	1110	16	1.0	--	--	--
MAR						
01...	1220	60	1.0	--	--	--
11...	0900	78	.0	--	--	--
APR						
21...	1200	878	9.0	--	--	--
MAY						
03...	1125	830	10.0	--	--	--
JUN						
07...	1055	388	18.0	--	--	--
JUL						
07...	1025	231	24.0	--	--	--
SEP						
16...	1125	228	15.5	--	--	--

06477000 JAMES RIVER NEAR FORESTBURG, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	76	80	16	127	70	24	194	30	16
2	84	100	23	132	70	25	193	30	16
3	101	150	41	137	70	26	187	30	15
4	108	200	58	141	70	27	173	30	14
5	102	150	41	143	80	31	176	30	14
6	97	100	26	142	80	31	178	30	14
7	98	80	21	140	80	30	147	30	12
8	96	60	16	140	80	30	140	30	11
9	110	70	21	145	80	31	140	30	11
10	138	80	30	152	80	33	140	30	11
11	157	90	38	164	70	31	135	30	11
12	168	100	45	168	60	27	135	30	11
13	202	100	55	141	50	19	135	30	11
14	216	100	58	197	60	32	135	30	11
15	211	100	57	226	40	24	135	30	11
16	205	90	50	210	30	17	135	30	11
17	193	90	47	190	20	10	130	30	11
18	183	90	44	177	20	9.6	130	30	11
19	183	90	44	173	20	9.3	130	30	11
20	184	90	45	185	20	10	130	30	11
21	177	80	38	179	20	9.7	130	30	11
22	163	80	35	161	20	8.7	125	30	10
23	154	80	33	192	30	16	125	30	10
24	146	80	32	197	40	21	125	30	10
25	140	80	30	221	30	18	125	30	10
26	135	70	26	209	30	17	120	30	9.7
27	124	70	23	197	30	16	120	30	9.7
28	117	70	22	196	30	16	120	30	9.7
29	116	70	22	197	30	16	120	30	9.7
30	117	70	22	196	30	16	120	30	9.7
31	123	70	23	---	---	---	120	30	9.7
TOTAL	4424	---	1082	5175	---	631.3	4348	---	353.2
		JANUARY			FEBRUARY			MARCH	
1	115	20	6.2	26	10	.70	60	10	1.6
2	115	20	6.2	24	10	.65	61	10	1.6
3	115	20	6.2	23	10	.62	59	10	1.6
4	110	20	5.9	22	10	.59	53	10	1.4
5	110	20	5.9	20	10	.54	53	10	1.4
6	105	20	5.7	19	10	.51	55	20	3.0
7	105	20	5.7	19	10	.51	57	30	4.6
8	100	20	5.4	18	10	.49	60	40	6.5
9	95	20	5.1	17	10	.46	65	40	7.0
10	90	20	4.9	17	10	.46	70	50	9.5
11	85	20	4.6	16	10	.43	82	60	13
12	80	20	4.3	15	10	.41	88	70	17
13	75	20	4.1	15	10	.41	112	80	24
14	70	20	3.8	16	10	.43	118	50	16
15	65	20	3.5	17	10	.46	107	20	5.8
16	58	10	1.6	19	10	.51	105	20	5.7
17	53	10	1.4	21	10	.57	115	10	3.1
18	50	10	1.4	24	10	.65	120	10	3.2
19	45	10	1.2	27	10	.73	124	10	3.3
20	42	10	1.1	30	10	.81	126	10	3.4
21	40	10	1.1	35	10	.95	121	10	3.3
22	38	10	1.0	40	10	1.1	121	10	3.3
23	35	10	.95	55	10	1.5	126	10	3.4
24	33	10	.89	65	10	1.8	146	10	3.9
25	32	10	.86	60	10	1.6	189	10	5.1
26	31	10	.84	59	10	1.6	245	10	6.6
27	30	10	.81	59	10	1.6	310	10	8.4
28	28	10	.76	56	10	1.5	357	10	9.6
29	28	10	.76	---	---	---	422	20	23
30	27	10	.73	---	---	---	479	30	39
31	27	10	.73	---	---	---	550	30	45
TOTAL	2032	---	93.63	834	---	22.59	4756	---	283.3

06477000 JAMES RIVER NEAR FORESTBURG, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	612	30	50	840	100	227	455	100	123
2	668	30	54	835	100	225	436	100	118
3	704	30	57	830	90	202	406	100	110
4	716	30	58	811	90	197	380	100	103
5	722	30	58	790	90	192	381	100	103
6	736	40	79	768	90	187	391	100	106
7	757	40	82	756	90	184	388	100	105
8	772	40	83	752	90	183	375	100	101
9	780	40	84	730	90	177	363	100	98
10	786	40	85	667	90	162	345	100	93
11	804	50	109	648	100	175	328	100	89
12	816	50	110	722	110	214	314	100	85
13	870	50	117	766	120	248	321	150	130
14	919	50	124	743	110	221	345	200	186
15	923	50	125	711	110	211	344	180	167
16	888	60	144	684	110	203	341	170	157
17	872	60	141	666	110	198	336	170	154
18	875	60	142	653	100	176	322	170	148
19	877	60	142	643	100	174	303	160	131
20	879	60	142	642	100	173	288	160	124
21	884	60	143	637	100	172	287	150	116
22	891	80	192	616	100	166	284	150	115
23	901	100	243	602	100	163	272	140	103
24	897	110	266	590	100	159	260	140	98
25	874	120	283	571	100	154	249	130	87
26	855	140	323	555	100	150	253	140	96
27	848	120	275	526	100	142	249	150	101
28	864	110	257	509	100	137	260	170	119
29	865	110	257	508	100	137	269	200	145
30	852	110	253	499	100	135	281	230	175
31	---	---	---	478	100	129	---	---	---
TOTAL	24707	---	4478	20748	---	5573	9826	---	3586
		JULY			AUGUST			SEPTEMBER	
1	279	260	196	249	200	134	283	240	183
2	264	270	192	250	210	142	267	240	173
3	253	280	191	252	210	143	270	240	175
4	251	290	197	261	220	155	268	240	174
5	253	290	198	269	220	160	270	240	175
6	247	280	187	275	220	163	274	230	170
7	230	280	174	290	230	180	261	230	162
8	216	280	163	310	230	193	250	230	155
9	209	280	158	311	230	193	238	230	148
10	201	280	152	313	240	203	249	230	155
11	192	260	135	321	240	208	245	220	146
12	183	260	128	325	240	211	231	210	131
13	170	240	110	325	240	211	223	210	126
14	157	240	102	327	250	221	226	210	128
15	143	240	93	332	250	224	225	200	121
16	140	220	83	342	270	249	221	180	107
17	165	220	98	391	300	317	220	180	107
18	176	250	119	395	290	309	206	180	100
19	152	220	90	391	290	306	199	160	86
20	141	200	76	397	290	311	196	160	85
21	135	170	62	391	280	296	191	150	77
22	138	150	56	386	280	292	178	140	67
23	146	150	59	382	280	289	167	140	63
24	154	150	62	371	270	270	159	140	60
25	164	150	66	363	270	265	154	140	58
26	172	160	74	351	270	256	151	130	53
27	183	170	84	344	260	241	148	130	52
28	201	180	98	342	250	231	146	130	51
29	214	180	104	328	240	213	146	130	51
30	223	190	116	319	240	207	143	130	50
31	238	190	122	306	240	198	---	---	---
TOTAL	5990	---	3743	10209	---	6991	6405	---	4389

06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD

LOCATION.--Lat 43°46'30", long 98°14'33", in SW¼SW¼ sec.26, T.104 N., R.62 W., Davison County, Hydrologic Unit 10160011, near center of span on downstream side of highway bridge, 4.5 mi north of Mount Vernon, 5.2 mi downstream from West Firesteel Creek, and 12 mi northwest of Mitchell.

DRAINAGE AREA.--540 mi^2, approximately.

PERIOD OF RECORD.--September 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,297.22 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, nonrecording gage and crest-stage gage.

REMARKS.--Records good except those for winter period, Dec. 21 to Feb. 12, which are fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 19.5 ft^3/s (14,130 acre-ft/yr); median of yearly mean discharges, 8.4 ft^3/s (6,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,610 ft^3/s Apr. 4, 1969 (gage height, 15.34 ft); maximum gage height, 17.12 ft Apr. 3, 1969 (backwater from ice); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 14	1400	163	4.98	Apr. 19	0700	*172	*5.06
Apr. 3	1900	154	4.94				

Minimum daily discharge, 0.01 ft^3/s Aug. 30 to Sept. 7, Sept. 9-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	9.8	2.1	.55	.25	.88	17	22	4.2	39	.49	.01
2	.40	8.8	2.5	.50	.22	.99	30	23	3.5	31	.37	.01
3	.30	8.0	2.5	.50	.20	2.0	137	22	2.8	16	.32	.01
4	.13	7.3	2.3	.45	.20	2.3	139	21	2.4	11	.31	.01
5	.10	6.4	2.2	.45	.19	3.3	91	22	2.0	9.1	.29	.01
6	.11	6.3	2.0	.70	.15	4.8	74	25	2.4	7.9	.22	.01
7	.31	6.1	1.7	.80	.15	8.6	74	27	2.3	12	.17	.01
8	1.1	5.8	1.5	.90	.16	4.7	67	24	.92	17	.14	.02
9	1.7	5.5	1.3	1.0	.16	4.3	56	20	.51	17	.11	.01
10	2.6	5.7	1.3	1.2	.18	5.6	48	17	.32	13	.08	.01
11	3.4	6.1	1.1	1.3	.18	6.0	41	15	.20	11	.07	.01
12	4.0	5.8	.97	1.3	.25	10	40	14	.45	8.9	.08	.01
13	23	5.5	.96	1.5	.57	20	45	13	1.4	7.2	.15	.01
14	158	5.3	.82	1.3	.64	17	33	12	6.0	7.1	.16	.01
15	163	5.2	.76	1.0	.64	13	43	11	4.4	6.2	.13	.03
16	149	4.7	.75	.90	.64	12	54	13	2.5	5.5	.21	.05
17	127	4.4	.75	.77	.64	11	71	45	2.0	6.1	.22	.05
18	106	4.5	.75	.65	.64	14	126	38	1.5	6.0	.16	.04
19	89	5.0	.75	.59	.64	16	170	31	.75	4.6	.12	.03
20	73	5.3	.75	.55	.75	14	144	41	1.1	3.7	.10	.06
21	60	5.1	.75	.48	.81	13	116	43	.95	3.2	.06	.06
22	49	4.3	.75	.41	.88	13	98	38	2.5	2.3	.05	.07
23	41	2.9	.75	.39	.88	11	85	30	1.5	2.0	.05	.07
24	34	2.7	.75	.36	.88	10	71	22	.45	2.0	.05	.05
25	28	2.7	.75	.36	.88	9.2	60	16	.40	2.0	.04	.06
26	24	2.5	.75	.33	.96	9.2	51	14	.57	1.6	.03	.06
27	20	2.2	.75	.27	.96	13	42	11	.51	1.5	.03	.05
28	17	2.2	.63	.25	.94	10	37	8.5	3.5	1.5	.03	.04
29	15	2.2	.60	.25	---	12	30	6.6	7.5	1.2	.02	.04
30	13	2.0	.60	.25	---	12	26	5.5	10	.87	.01	.09
31	11	---	.60	.25	---	15	---	4.4	---	.66	.01	---
TOTAL	1214.35	150.3	35.44	20.51	14.64	297.87	2116	655.0	69.53	258.13	4.28	1.00
MEAN	39.2	5.01	1.14	.66	.52	9.61	70.5	21.1	2.32	8.33	.14	.033
MAX	163	9.8	2.5	1.5	.96	20	170	45	10	39	.49	.09
MIN	.10	2.0	.60	.25	.15	.88	17	4.4	.20	.66	.01	.01
AC-FT	2410	298	70	41	29	591	4200	1300	138	512	8.5	2.0

CAL YR 1982 TOTAL 5514.79 MEAN 15.1 MAX 320 MIN .00 AC-FT 10940
WTR YR 1983 TOTAL 4837.05 MEAN 13.3 MAX 170 MIN .01 AC-FT 9590

06478052 ENEMY CREEK NEAR MITCHELL, SD

LOCATION.--Lat 43°38'33", long 97°59'09", in NW¼NW¼ sec.13, T.102 N., R.60 W., Davison County, Hydrologic Unit 10160011, on left bank 3 ft downstream from highway bridge, 4.5 mi southeast of Mitchell, and 7.3 mi above mouth.

DRAINAGE AREA.--181 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--WDR SD-78-1: 1977.

GAGE.--Water-stage recorder. Altitude of gage is 1,280 ft, from topographic map.

REMARKS.--Records good except those for winter period, Dec. 24 to Feb. 16, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--8 years, 4.74 ft^3/s (3,430 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,390 ft^3/s Mar. 19, 1978 (gage height, 11.27 ft); maximum gage height, 12.54 ft Mar. 19, 1978 (backwater from ice); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 14	1430	53	6.25	Apr. 16	1530	215	7.56
Apr. 1	1315	194	7.46	May 2	2245	174	7.24
Apr. 8	0430	61	6.35	June 21	2300	*522	*9.12
Apr. 13	1745	166	7.15	July 2	1315	315	8.22

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.08	.17	.10	.06	7.7	176	20	4.1	255	9.2	.00
2	.00	.08	.17	.09	.05	7.7	128	69	4.1	301	8.2	.00
3	.00	.10	.17	.12	.05	7.4	86	149	3.8	281	6.7	.00
4	.00	.14	.09	.12	.04	6.9	62	87	3.5	192	5.5	.00
5	.00	.14	.14	.10	.03	7.8	48	55	3.1	134	4.7	.00
6	.00	.17	.17	.18	.02	8.9	42	42	2.7	91	4.0	.00
7	.00	.27	.12	.23	.02	12	44	34	2.2	64	3.5	.00
8	.00	.27	.10	.18	.01	14	54	29	2.0	47	2.7	.00
9	.00	.27	.10	.50	.01	11	42	24	1.7	37	1.8	.00
10	.00	.50	.10	1.0	.02	11	33	20	1.4	29	1.4	.00
11	.00	.56	.09	.44	.02	9.0	27	18	1.2	23	1.3	.00
12	.00	2.0	.09	.39	.03	12	30	16	1.1	19	.97	.00
13	.00	.50	.09	.54	.50	17	102	13	2.3	16	.75	.00
14	.00	.31	.09	.44	1.5	43	82	13	1.8	13	.52	.00
15	.00	.27	.10	.29	2.3	49	90	13	1.9	12	.40	.00
16	.00	.23	.11	.22	2.0	43	162	13	1.8	11	.27	.00
17	.00	.23	.10	.22	2.7	36	182	12	2.2	11	.22	.00
18	.00	.23	.10	.15	1.9	32	142	11	3.2	15	.17	.00
19	.00	.35	.11	.11	7.3	26	120	11	3.8	17	.16	.00
20	.00	.50	.11	.11	6.0	21	85	11	84	16	.08	.00
21	.00	.40	.13	.11	5.0	19	66	10	349	13	.08	.00
22	.01	.27	.13	.12	5.2	17	52	9.3	425	9.7	.07	.00
23	.03	.20	.13	.12	6.6	15	43	8.4	197	9.1	.06	.00
24	.05	.20	.12	.10	7.1	14	36	7.9	104	8.3	.04	.00
25	.06	.20	.12	.10	5.4	13	31	7.1	63	6.6	.02	.00
26	.07	.20	.12	.10	6.3	12	27	6.6	43	6.3	.03	.00
27	.07	.17	.12	.09	7.5	11	21	6.0	34	8.0	.04	.00
28	.09	.17	.15	.09	7.5	15	18	5.5	66	12	.04	.00
29	.08	.14	.12	.09	---	18	19	4.8	156	11	.02	.00
30	.08	.12	.12	.09	---	24	19	4.5	224	9.1	.01	.00
31	.08	---	.11	.09	---	107	---	4.3	---	8.7	.00	---
TOTAL	.62	9.27	3.69	6.63	75.16	647.4	2069	734.4	1792.9	1685.8	52.95	.00
MEAN	.020	.31	.12	.21	2.68	20.9	69.0	23.7	59.8	54.4	1.71	.000
MAX	.09	2.0	.17	1.0	7.5	107	182	149	425	301	9.2	.00
MIN	.00	.08	.09	.09	.01	6.9	18	4.3	1.1	6.3	.00	.00
AC-FT	1.2	18	7.3	13	149	1280	4100	1460	3560	3340	105	.00

CAL YR 1982 TOTAL 400.22 MEAN 1.10 MAX 83 MIN .00 AC-FT 794
WTR YR 1983 TOTAL 7077.82 MEAN 19.4 MAX 425 MIN .00 AC-FT 14040

06478052 ENEMY CREEK NEAR MITCHELL, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

REMARKS.--Records poor. No flow Oct. 1-21, Aug. 31 to Sept. 30. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 269 mg/L June 1, 1982; minimum daily mean, 0 mg/L on many days each year.
SEDIMENT LOADS: Maximum daily, 104 tons June 21, 1983; minimum daily, 0 ton on many days each year.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 130 mg/L May 3; minimum daily mean, 0 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 104 tons June 21; minimum daily, 0 ton on many days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.00	0	.00	.08	2	.00	.17	2	.00
2	.00	0	.00	.08	2	.00	.17	2	.00
3	.00	0	.00	.10	2	.00	.17	2	.00
4	.00	0	.00	.14	2	.00	.09	2	.00
5	.00	0	.00	.14	2	.00	.14	2	.00
6	.00	0	.00	.17	2	.00	.17	2	.00
7	.00	0	.00	.27	2	.00	.12	2	.00
8	.00	0	.00	.27	2	.00	.10	2	.00
9	.00	0	.00	.27	2	.00	.10	2	.00
10	.00	0	.00	.50	2	.00	.10	2	.00
11	.00	0	.00	.56	5	.00	.09	2	.00
12	.00	0	.00	2.0	6	.03	.09	2	.00
13	.00	0	.00	.50	5	.00	.09	2	.00
14	.00	0	.00	.31	4	.00	.09	2	.00
15	.00	0	.00	.27	3	.00	.10	2	.00
16	.00	0	.00	.23	2	.00	.11	2	.00
17	.00	0	.00	.23	2	.00	.10	2	.00
18	.00	0	.00	.23	2	.00	.10	2	.00
19	.00	0	.00	.35	3	.00	.11	2	.00
20	.00	0	.00	.50	4	.00	.11	2	.00
21	.00	0	.00	.40	3	.00	.13	2	.00
22	.01	1	.00	.27	2	.00	.13	2	.00
23	.03	1	.00	.20	2	.00	.13	2	.00
24	.05	1	.00	.20	2	.00	.12	2	.00
25	.06	1	.00	.20	2	.00	.12	2	.00
26	.07	2	.00	.20	2	.00	.12	2	.00
27	.07	2	.00	.17	2	.00	.12	2	.00
28	.09	2	.00	.17	2	.00	.15	2	.00
29	.08	2	.00	.14	2	.00	.12	2	.00
30	.08	2	.00	.12	2	.00	.12	2	.00
31	.08	2	.00	---	---	---	.11	2	.00
TOTAL	0.62	---	0.00	9.27	---	0.03	3.69	---	0.00

06478052 ENEMY CREEK NEAR MITCHELL, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.10	2	.00	.06	2	.00	7.7	12	.25
2	.09	2	.00	.05	2	.00	7.7	10	.21
3	.12	2	.00	.05	2	.00	7.4	10	.20
4	.12	2	.00	.04	2	.00	6.9	10	.19
5	.10	2	.00	.03	2	.00	7.8	10	.21
6	.18	3	.00	.02	2	.00	8.9	11	.26
7	.23	6	.00	.02	2	.00	12	12	.39
8	.18	9	.00	.01	2	.00	14	13	.49
9	.50	12	.02	.01	2	.00	11	11	.33
10	1.0	15	.04	.02	2	.00	11	10	.30
11	.44	10	.01	.02	2	.00	9.0	10	.24
12	.39	8	.00	.03	2	.00	12	10	.32
13	.54	11	.02	.50	5	.00	17	12	.55
14	.44	7	.00	1.5	10	.04	43	15	1.7
15	.29	5	.00	2.3	20	.12	49	25	3.3
16	.22	4	.00	2.0	18	.10	43	22	2.6
17	.22	3	.00	2.7	20	.15	36	20	1.9
18	.15	3	.00	1.9	15	.08	32	18	1.6
19	.11	3	.00	7.3	17	.34	26	17	1.2
20	.11	2	.00	6.0	10	.16	21	16	.91
21	.11	2	.00	5.0	10	.14	19	15	.77
22	.12	2	.00	5.2	10	.14	17	14	.64
23	.12	2	.00	6.6	11	.20	15	14	.57
24	.10	2	.00	7.1	12	.23	14	13	.49
25	.10	2	.00	5.4	10	.15	13	13	.46
26	.10	2	.00	6.3	11	.19	12	13	.42
27	.09	2	.00	7.5	11	.22	11	13	.39
28	.09	2	.00	7.5	12	.24	15	15	.61
29	.09	2	.00	---	---	---	18	20	.97
30	.09	2	.00	---	---	---	24	30	1.9
31	.09	2	.00	---	---	---	107	---	---
TOTAL	6.63	---	0.09	75.16	---	2.50	647.4	---	24.37
		APRIL			MAY			JUNE	
1	176	70	33	20	13	.70	4.1	15	.17
2	128	50	17	69	120	22	4.1	14	.15
3	86	40	9.3	149	130	52	3.8	14	.14
4	62	30	5.0	87	100	23	3.5	13	.12
5	48	23	3.0	55	90	13	3.1	13	.11
6	42	20	2.3	42	80	9.1	2.7	13	.09
7	44	25	3.0	34	70	6.4	2.2	12	.07
8	54	30	4.4	29	60	4.7	2.0	12	.06
9	42	28	3.2	24	50	3.2	1.7	11	.05
10	33	23	2.0	20	45	2.4	1.4	10	.04
11	27	21	1.5	18	40	1.9	1.2	10	.03
12	30	20	1.6	16	35	1.5	1.1	10	.03
13	102	50	14	13	30	1.1	2.3	15	.09
14	82	26	5.8	13	28	.98	1.8	13	.06
15	90	100	24	13	26	.91	1.9	13	.07
16	162	110	48	13	26	.91	1.8	13	.06
17	182	120	59	12	24	.78	2.2	13	.08
18	142	110	42	11	23	.68	3.2	13	.11
19	120	100	32	11	22	.65	3.8	25	.26
20	85	75	17	11	21	.62	84	60	14
21	66	60	11	10	20	.54	349	110	104
22	52	50	7.0	9.3	19	.48	425	50	57
23	43	45	5.2	8.4	18	.41	197	12	6.4
24	36	40	3.9	7.9	18	.38	104	9	2.5
25	31	35	2.9	7.1	17	.33	63	7	1.2
26	27	30	2.2	6.6	17	.30	43	7	.81
27	21	23	1.3	6.0	16	.26	34	7	.64
28	18	18	.87	5.5	16	.24	66	10	1.8
29	19	16	.82	4.8	15	.19	156	15	6.3
30	19	14	.72	4.5	15	.18	224	20	12
31	---	---	---	4.3	15	.17	---	---	---
TOTAL	2069	---	363.01	734.4	---	150.01	1792.9	---	208.44

06478052 ENEMY CREEK NEAR MITCHELL, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	255	30	21	9.2	10	.25	.00	0	.00
2	301	50	41	8.2	9	.20	.00	0	.00
3	281	45	34	6.7	9	.16	.00	0	.00
4	192	45	23	5.5	9	.13	.00	0	.00
5	134	40	14	4.7	8	.10	.00	0	.00
6	91	30	7.4	4.0	7	.08	.00	0	.00
7	64	25	4.3	3.5	6	.06	.00	0	.00
8	47	20	2.5	2.7	5	.04	.00	0	.00
9	37	18	1.8	1.8	5	.02	.00	0	.00
10	29	16	1.3	1.4	5	.02	.00	0	.00
11	23	15	.93	1.3	4	.01	.00	0	.00
12	19	13	.67	.97	3	.00	.00	0	.00
13	16	11	.48	.75	3	.00	.00	0	.00
14	13	11	.39	.52	3	.00	.00	0	.00
15	12	10	.32	.40	3	.00	.00	0	.00
16	11	10	.30	.27	2	.00	.00	0	.00
17	11	10	.30	.22	2	.00	.00	0	.00
18	15	15	.61	.17	2	.00	.00	0	.00
19	17	20	.92	.16	2	.00	.00	0	.00
20	16	15	.65	.08	2	.00	.00	0	.00
21	13	10	.35	.08	1	.00	.00	0	.00
22	9.7	9	.24	.07	1	.00	.00	0	.00
23	9.1	8	.20	.06	1	.00	.00	0	.00
24	8.3	7	.16	.04	1	.00	.00	0	.00
25	6.6	6	.11	.02	1	.00	.00	0	.00
26	6.3	5	.09	.03	1	.00	.00	0	.00
27	8.0	10	.22	.04	1	.00	.00	0	.00
28	12	20	.65	.04	1	.00	.00	0	.00
29	11	15	.43	.02	1	.00	.00	0	.00
30	9.1	10	.25	.01	1	.00	.00	0	.00
31	8.7	10	.23	.00	0	.00	---	---	---
TOTAL	1685.8	---	158.82	52.95	---	1.07	0.00	---	0.00

06478053 PIERRE CREEK NEAR ALEXANDRIA, SD

LOCATION.--Lat 43°37'52", long 97°46'00", in SE¼SE¼ sec.15, T.102 N., R.58 W., Hanson County, Hydrologic Unit 10160011, on left bank 5 ft downstream from county highway bridge, 1.7 mi southeast of Alexandria, 1.9 mi upstream from Lake Hanson and 6.5 mi upstream from mouth.

DRAINAGE AREA.--72.7 mi², approximately.

PERIOD OF RECORD.--October 1981 to September 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,262 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 119 ft³/s June 20, 1983 (gage height, 6.56 ft); minimum daily discharge, 1.5 ft³/s July 29, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 119 ft³/s at 0830 hours, June 20 (gage height, 6.56 ft); minimum daily discharge, 2.4 ft³/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	3.6	4.9	3.5	3.0	8.2	13	11	3.5	32	6.2	5.3
2	4.3	3.7	5.8	3.4	3.0	7.6	12	19	3.7	29	6.1	5.2
3	3.0	3.6	4.4	3.3	3.0	7.1	10	12	3.9	26	6.0	4.9
4	2.6	3.3	4.1	3.3	2.9	6.9	8.3	8.7	3.5	20	5.8	5.3
5	2.4	3.5	3.9	3.2	2.9	9.1	7.7	7.9	3.8	15	5.8	5.7
6	4.6	3.6	3.8	3.5	2.7	18	9.5	8.1	3.8	13	5.9	5.4
7	3.1	3.6	3.5	3.4	2.8	26	9.7	7.8	4.0	11	5.7	5.0
8	8.0	3.5	3.3	3.5	2.7	15	8.2	7.4	4.6	9.6	5.7	4.8
9	27	4.9	3.0	5.1	2.8	11	7.8	6.7	4.8	8.6	5.4	5.0
10	13	6.3	2.6	6.3	3.0	11	7.5	6.0	4.9	8.0	5.3	5.1
11	6.0	9.4	2.6	6.6	3.0	8.0	7.2	6.0	5.2	7.4	5.2	4.9
12	4.6	9.7	2.6	4.9	3.1	13	14	6.4	5.4	6.9	5.2	4.7
13	3.5	6.5	2.6	4.4	3.9	18	36	6.2	12	6.6	5.3	5.0
14	3.6	4.7	2.6	4.9	4.5	13	25	5.7	9.0	6.1	4.9	5.5
15	3.6	3.9	2.6	4.3	13	12	30	5.5	6.6	6.1	4.9	5.7
16	3.3	3.7	2.5	3.9	34	11	27	5.4	5.4	9.5	5.0	5.7
17	3.5	3.9	2.7	3.7	61	11	18	5.4	7.3	8.1	5.1	5.6
18	3.2	4.5	3.0	3.6	53	11	14	5.4	7.5	7.8	5.3	5.3
19	4.3	7.4	2.8	3.2	55	9.5	12	5.6	6.6	7.1	5.0	5.2
20	4.9	8.4	2.7	3.2	34	7.9	9.9	5.3	73	6.8	4.8	5.6
21	4.6	6.0	2.8	3.2	18	7.1	9.3	5.3	43	6.4	4.8	5.5
22	4.3	5.4	3.1	3.2	17	6.5	9.1	4.7	23	6.1	4.8	5.4
23	4.0	4.7	3.1	3.1	13	6.3	8.6	4.6	16	6.8	4.9	5.5
24	4.0	3.2	6.2	3.2	11	6.1	8.0	4.4	12	6.9	5.1	5.4
25	3.7	3.4	6.4	3.2	7.0	6.1	7.5	4.2	9.3	6.6	5.1	5.3
26	3.6	3.6	5.3	3.2	7.4	6.5	6.8	3.6	8.2	6.4	5.1	5.1
27	3.5	2.9	3.8	3.2	9.5	6.9	6.4	3.6	8.7	9.0	5.0	5.1
28	4.0	3.2	3.8	3.1	8.6	11	7.4	3.4	20	8.1	5.0	4.9
29	3.5	3.4	3.8	3.2	---	10	7.3	3.1	26	7.7	4.9	5.6
30	3.5	3.8	3.7	3.2	---	13	8.0	3.3	31	6.8	5.4	6.5
31	3.5	---	3.6	3.1	---	15	---	3.4	---	6.4	5.3	---
TOTAL	155.5	141.3	111.6	115.9	384.8	328.8	365.2	195.1	375.5	321.8	164.0	159.2
MEAN	5.02	4.71	3.60	3.74	13.7	10.6	12.2	6.29	12.5	10.4	5.29	5.31
MAX	27	9.7	6.4	6.6	61	26	36	19	73	32	6.2	6.5
MIN	2.4	2.9	2.5	3.1	2.7	6.1	6.4	3.1	3.5	6.1	4.8	4.7
AC-FT	308	280	221	230	763	652	724	387	745	638	325	316

CAL YR 1982 TOTAL 1430.8 MEAN 3.92 MAX 74 MIN 1.5 AC-FT 2840
WTR YR 1983 TOTAL 2818.7 MEAN 7.72 MAX 73 MIN 2.4 AC-FT 5590

06478320 PLUM CREEK NEAR MILLTOWN, SD

LOCATION.--Lat 43°25'05", long 97°46'13", in SE¼SW¼ sec.1, T.99 N., R.59 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5 ft downstream from highway bridge, 0.9 mi upstream from mouth, and 1.6 mi southeast of Milltown.

DRAINAGE AREA.--35.4 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,194 ft, from topographic map.

REMARKS.--Records good except those for winter periods, Nov. 11 to Feb. 25 and Mar. 8-28, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 774 ft^3/s June 20, 1983 (gage height, 7.14 ft); no flow in 1982 and 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 774 ft^3/s at 1115 hours, June 20 (gage height, 7.14 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.10	.00	.00	16	27	5.9	.00	42	3.6	.00
2	.00	.00	.20	.00	.00	14	24	23	.00	37	.93	.00
3	.00	.00	.10	.00	.00	13	18	30	.00	37	.23	.00
4	.00	.00	.10	.00	.00	12	14	23	.00	32	.05	.00
5	.00	.00	.10	.00	.00	17	10	17	.00	26	.00	.00
6	.00	.00	.05	.00	.00	32	9.7	13	.00	20	.00	.00
7	.00	.00	.00	.00	.00	54	9.4	11	.00	14	.00	.00
8	.00	.00	.00	.00	.00	30	8.4	9.3	.00	10	.00	.00
9	.29	.00	.00	.00	.00	25	7.4	7.3	.00	8.1	.00	.00
10	.00	.06	.00	.05	.00	20	6.3	5.8	.00	5.6	.00	.00
11	.50	.10	.00	.15	.00	15	5.3	4.8	.00	5.3	.00	.00
12	2.8	.50	.00	.05	.00	15	8.7	5.0	.00	5.2	.00	.00
13	15	2.0	.00	.01	.00	31	10	5.0	.00	1.8	.00	.00
14	5.3	4.0	.00	.10	1.0	35	40	4.0	.00	.65	.00	.00
15	2.0	5.0	.00	.05	10	31	38	3.6	.00	.27	.00	.00
16	.93	9.0	.00	.00	15	28	34	3.8	.00	.81	.00	.00
17	.44	2.0	.00	.00	32	26	28	4.0	.00	5.6	.00	.00
18	.21	1.8	.00	.00	70	25	23	5.0	.19	2.6	.00	.00
19	.23	3.0	.00	.00	60	23	17	5.6	.10	.27	.00	.00
20	.37	6.0	.00	.00	40	20	13	5.6	201	.05	.00	.00
21	.29	6.5	.00	.00	35	15	11	5.3	624	.00	.00	.00
22	.15	6.0	.00	.00	30	13	9.6	5.0	282	.00	.00	.00
23	.15	5.0	.00	.00	23	10	8.3	4.3	117	.00	.00	.00
24	.07	2.0	.00	.00	20	8.4	7.3	3.6	70	.00	.00	.00
25	.01	.50	.00	.00	25	7.4	6.6	2.8	50	.00	.00	.00
26	.00	.20	.00	.00	24	3.0	4.9	2.3	39	.00	.00	.00
27	.00	.10	.00	.00	22	1.0	3.4	1.2	33	.00	.00	.00
28	.00	.05	.00	.00	17	8.0	3.6	.30	40	34	.00	.00
29	.00	.05	.00	.00	---	13	3.5	.06	39	51	.00	.00
30	.00	.05	.00	.00	---	22	4.4	.00	41	24	.00	.00
31	.00	---	.00	.00	---	32	---	.00	---	10	.00	---
TOTAL	28.76	53.91	.65	.41	424.00	614.8	413.8	216.56	1536.29	373.25	4.81	.00
MEAN	.93	1.80	.021	.013	15.1	19.8	13.8	6.99	51.2	12.0	.16	.000
MAX	15	9.0	.20	.15	70	54	40	30	624	51	3.6	.00
MIN	.00	.00	.00	.00	.00	1.0	3.4	.00	.00	.00	.00	.00
AC-FT	57	107	1.3	.8	841	1220	821	430	3050	740	9.5	.00

CAL YR 1982 TOTAL 356.81 MEAN .98 MAX 50 MIN .00 AC-FT 708
WTR YR 1983 TOTAL 3667.24 MEAN 10.0 MAX 624 MIN .00 AC-FT 7270

06478320 PLUM CREEK NEAR MILLTOWN, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

REMARKS.--Records poor. No flow Oct. 1-8, 10, Oct. 26 to Nov. 9, Dec. 7 to Jan. 9, Jan. 16 to Feb. 13, May 30 to June 17, July 21-27, Aug. 5 to Sept. 30. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,190 mg/L Feb. 22, 1982; minimum daily mean, 0 mg/L on many days each year.
SEDIMENT LOADS: Maximum daily, 337 tons June 21, 1983; minimum daily, 0 ton on many days each year.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 250 mg/L Feb. 18; minimum daily mean, 0 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 337 tons June 21; minimum daily, 0 ton on many days.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV						
16...	1210	6.7	.0	16	.29	98
JAN						
11...	1145	.17	.0	--	--	--
FEB						
18...	1200	81	.0	--	--	--
24...	1000	19	.0	--	--	--
MAR						
03...	1400	13	9.5	--	--	--
08...	1505	13	.0	49	1.7	96
APR						
14...	1030	32	.0	--	--	--
27...	1510	3.7	20.0	--	--	--
JUN						
23...	1010	122	26.0	71	23	85
24...	1130	71	28.0	--	--	--
27...	1400	33	21.5	--	--	--
JUL						
11...	1430	4.4	28.0	8	.10	93

06478320 PLUM CREEK NEAR MILLTOWN, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.00	0	.00	.00	0	.00	.10	1	.00
2	.00	0	.00	.00	0	.00	.20	1	.00
3	.00	0	.00	.00	0	.00	.10	1	.00
4	.00	0	.00	.00	0	.00	.10	1	.00
5	.00	0	.00	.00	0	.00	.10	1	.00
6	.00	0	.00	.00	0	.00	.05	1	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.29	1	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.06	1	.00	.00	0	.00
11	.50	1	.00	.10	2	.00	.00	0	.00
12	2.8	10	.08	.50	5	.00	.00	0	.00
13	15	30	1.2	2.0	7	.04	.00	0	.00
14	5.3	10	.14	4.0	9	.10	.00	0	.00
15	2.0	8	.04	5.0	12	.16	.00	0	.00
16	.93	5	.01	9.0	16	.39	.00	0	.00
17	.46	1	.00	2.0	12	.06	.00	0	.00
18	.21	1	.00	1.8	10	.05	.00	0	.00
19	.23	1	.00	3.0	11	.09	.00	0	.00
20	.37	1	.00	6.0	12	.19	.00	0	.00
21	.29	1	.00	6.5	14	.25	.00	0	.00
22	.15	1	.00	6.0	12	.19	.00	0	.00
23	.15	1	.00	5.0	10	.14	.00	0	.00
24	.07	1	.00	2.0	7	.04	.00	0	.00
25	.01	1	.00	.50	1	.00	.00	0	.00
26	.00	0	.00	.20	1	.00	.00	0	.00
27	.00	0	.00	.10	1	.00	.00	0	.00
28	.00	0	.00	.05	1	.00	.00	0	.00
29	.00	0	.00	.05	1	.00	.00	0	.00
30	.00	0	.00	.05	1	.00	.00	0	.00
31	.00	0	.00	---	---	---	.00	0	.00
TOTAL	28.76	---	1.47	53.91	---	1.70	0.65	---	0.00
		JANUARY			FEBRUARY			MARCH	
1	.00	0	.00	.00	0	.00	14	60	2.3
2	.00	0	.00	.00	0	.00	14	50	1.9
3	.00	0	.00	.00	0	.00	13	40	1.4
4	.00	0	.00	.00	0	.00	12	40	1.3
5	.00	0	.00	.00	0	.00	17	50	2.3
6	.00	0	.00	.00	0	.00	32	80	6.9
7	.00	0	.00	.00	0	.00	54	100	15
8	.00	0	.00	.00	0	.00	30	50	4.1
9	.00	0	.00	.00	0	.00	25	40	2.7
10	.05	1	.00	.00	0	.00	20	30	1.6
11	.15	2	.00	.00	0	.00	15	30	1.2
12	.05	1	.00	.00	0	.00	15	30	1.2
13	.01	1	.00	.00	0	.00	31	40	3.3
14	.10	2	.00	1.0	10	.03	35	50	4.7
15	.05	1	.00	10	50	1.4	31	40	3.3
16	.00	0	.00	15	60	2.4	28	30	2.3
17	.00	0	.00	30	100	8.1	26	30	2.1
18	.00	0	.00	70	250	47	25	30	2.0
19	.00	0	.00	60	200	32	23	30	1.9
20	.00	0	.00	40	100	11	20	30	1.6
21	.00	0	.00	35	70	6.6	15	20	.81
22	.00	0	.00	30	40	3.2	13	20	.70
23	.00	0	.00	25	20	1.4	10	10	.27
24	.00	0	.00	20	14	.76	8.4	10	.23
25	.00	0	.00	25	80	5.4	7.4	10	.20
26	.00	0	.00	24	80	5.2	5.0	10	.14
27	.00	0	.00	22	70	4.2	1.0	10	.03
28	.00	0	.00	17	60	2.8	8.0	20	.43
29	.00	0	.00	---	---	---	13	30	1.1
30	.00	0	.00	---	---	---	22	30	1.8
31	.00	0	.00	---	---	---	32	40	3.5
TOTAL	0.41	---	0.00	424.00	---	131.49	614.8	---	72.31

06478320 PLUM CREEK NEAR MILLTOWN, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	27	30	2.2	5.9	10	.16	.00	0	.00
2	24	30	1.9	23	20	1.2	.00	0	.00
3	18	20	.97	30	30	2.6	.00	0	.00
4	14	20	.76	23	20	1.2	.00	0	.00
5	10	10	.27	17	20	.92	.00	0	.00
6	9.7	10	.26	13	20	.70	.00	0	.00
7	9.4	10	.25	11	20	.59	.00	0	.00
8	8.4	10	.23	9.3	10	.25	.00	0	.00
9	7.4	10	.20	7.3	10	.20	.00	0	.00
10	6.3	10	.17	5.8	10	.16	.00	0	.00
11	5.3	10	.14	4.8	10	.13	.00	0	.00
12	8.7	10	.23	5.0	10	.14	.00	0	.00
13	10	20	.54	5.0	10	.14	.00	0	.00
14	40	30	3.2	4.0	10	.11	.00	0	.00
15	38	40	4.1	3.6	10	.10	.00	0	.00
16	34	40	3.7	3.8	10	.10	.00	0	.00
17	28	30	2.3	4.0	10	.11	.00	0	.00
18	23	30	1.9	5.0	10	.14	.19	1	.00
19	17	20	.92	5.6	10	.15	.10	10	.00
20	13	20	.70	5.6	10	.15	201	50	27
21	11	20	.59	5.3	10	.14	624	200	337
22	9.6	10	.26	5.0	10	.14	282	100	76
23	8.3	10	.22	4.3	10	.12	117	70	22
24	7.3	10	.20	3.6	10	.10	70	60	11
25	6.6	10	.18	2.8	10	.08	50	50	6.8
26	4.9	10	.13	2.3	10	.06	39	40	4.2
27	3.4	10	.09	1.2	1	.00	33	80	7.1
28	3.6	10	.10	.30	1	.00	40	100	11
29	3.5	10	.09	.06	1	.00	39	90	9.5
30	4.4	10	.12	.00	0	.00	41	90	10
31	---	---	---	.00	0	.00	---	---	---
TOTAL	413.8	---	26.92	216.56	---	9.69	1536.29	---	521.60
		JULY			AUGUST			SEPTEMBER	
1	42	80	9.1	3.6	7	.07	.00	0	.00
2	37	70	7.0	.93	6	.02	.00	0	.00
3	37	60	6.0	.23	5	.00	.00	0	.00
4	32	50	4.3	.05	1	.00	.00	0	.00
5	26	40	2.8	.00	0	.00	.00	0	.00
6	20	30	1.6	.00	0	.00	.00	0	.00
7	14	20	.76	.00	0	.00	.00	0	.00
8	10	10	.27	.00	0	.00	.00	0	.00
9	8.1	9	.20	.00	0	.00	.00	0	.00
10	5.6	8	.12	.00	0	.00	.00	0	.00
11	5.3	8	.11	.00	0	.00	.00	0	.00
12	5.2	8	.11	.00	0	.00	.00	0	.00
13	1.8	7	.03	.00	0	.00	.00	0	.00
14	.65	7	.01	.00	0	.00	.00	0	.00
15	.27	6	.00	.00	0	.00	.00	0	.00
16	.81	7	.02	.00	0	.00	.00	0	.00
17	5.6	10	.15	.00	0	.00	.00	0	.00
18	2.6	6	.04	.00	0	.00	.00	0	.00
19	.27	3	.00	.00	0	.00	.00	0	.00
20	.05	1	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	34	50	4.6	.00	0	.00	.00	0	.00
29	51	100	14	.00	0	.00	.00	0	.00
30	24	20	1.3	.00	0	.00	.00	0	.00
31	10	10	.27	.00	0	.00	---	---	---
TOTAL	373.25	---	32.79	4.81	---	0.09	0.00	---	0.00

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft downstream from highway bridge, 4.1 mi upstream from mouth and 5.6 mi southeast of Clayton.

DRAINAGE AREA.--386 mi^2, approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder to Sept. 30, 1981. Nonrecording gage Oct. 1-30, 1981. Water-stage recorder Oct. 31, 1981, to current year. Altitude of gage is 1,210 ft, from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft upstream at different datum.

REMARKS.--Records good except those for winter period, Dec. 8 to Feb. 22, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--8 years, 23.3 ft^3/s (16,880 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,740 ft^3/s June 20, 1983 (gage height, 16.67 ft); no flow at times in 1976, 1977, 1980-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 175 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 20	1300	188	8.02	Apr. 16	0500	431	9.67
Feb. 20	--	1000	ice jam	May 2	2145	321	8.99
Mar. 13	0400	494	10.00	June 20	1915	*2740	*16.67
Mar. 31	0600	406	9.54	June 29	1900	341	8.98
Apr. 13	1600	456	9.80	July 17	2245	305	8.88

Minimum daily discharge, 1.7 ft^3/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	12	39	10	5.0	269	278	50	5.1	215	33	2.9
2	5.6	11	40	10	5.0	234	214	180	5.5	207	25	2.7
3	4.7	11	38	10	5.0	223	170	228	5.5	157	19	2.4
4	2.8	11	32	10	5.0	212	137	140	5.7	117	15	2.7
5	2.1	10	29	10	5.0	264	117	100	6.1	92	13	2.7
6	6.1	9.7	27	15	5.0	425	108	84	5.5	74	11	2.7
7	6.7	10	26	15	5.0	700	99	77	6.1	58	9.7	2.2
8	14	10	18	15	5.0	272	86	63	6.6	48	8.4	2.2
9	86	9.9	16	15	5.0	250	76	49	6.8	41	7.8	2.0
10	70	14	15	15	5.0	380	69	41	7.0	34	7.4	2.4
11	47	18	14	15	5.0	360	62	36	7.0	30	7.0	2.4
12	31	50	14	15	5.0	345	64	35	6.1	26	6.6	2.2
13	24	90	14	15	8.0	460	333	32	11	23	6.4	2.4
14	20	70	13	15	30	369	221	25	13	21	6.1	2.7
15	18	60	10	14	40	310	350	21	9.0	19	5.7	4.3
16	16	46	8.0	12	50	293	397	23	6.6	84	5.5	3.7
17	14	34	8.0	11	75	243	318	17	8.7	162	5.3	2.9
18	13	27	8.0	10	200	216	265	18	15	250	5.3	2.2
19	13	59	6.0	10	400	186	220	20	14	137	4.9	2.2
20	14	173	5.0	10	900	140	181	14	1340	78	4.5	2.4
21	13	131	5.0	10	800	110	149	13	1710	54	4.3	2.4
22	14	81	5.0	10	850	100	125	12	596	42	4.3	2.4
23	16	62	5.0	10	780	90	103	8.4	317	33	4.5	2.4
24	16	123	5.0	10	603	87	85	9.3	203	31	4.3	2.4
25	16	84	5.0	10	342	81	73	8.0	154	26	4.1	2.4
26	14	76	6.0	9.0	272	74	62	7.6	121	20	3.9	2.2
27	14	77	7.0	8.0	318	59	48	7.2	120	22	4.9	2.4
28	13	60	10	8.0	304	69	57	6.8	210	37	4.1	1.8
29	13	51	10	8.0	---	83	46	6.6	321	131	3.5	1.8
30	12	45	10	8.0	---	215	46	6.1	284	73	3.3	2.4
31	11	---	10	7.0	---	374	---	5.3	---	47	3.1	---
TOTAL	561.7	1525.6	458.0	350.0	6032.0	7493	4559	1343.3	5524.3	2389	250.9	74.9
MEAN	18.1	50.9	14.8	11.3	215	242	152	43.3	184	77.1	8.09	2.50
MAX	86	173	40	15	900	700	397	228	1710	250	33	4.3
MIN	1.7	9.7	5.0	7.0	5.0	59	46	5.3	5.1	19	3.1	1.8
AC-FT	1110	3030	908	694	11960	14860	9040	2660	10960	4740	498	149

CAL YR 1982 TOTAL 6361.33 MEAN 17.4 MAX 658 MIN .00 AC-FT 12620
WTR YR 1983 TOTAL 30561.70 MEAN 83.7 MAX 1710 MIN 1.7 AC-FT 60620

06478420 LONETREE CREEK AT OLIVET, SD

LOCATION.--Lat 43°13'35", long 97°40'44", in NE¼NE¼ sec.15, T.97 N., R.58 W., Hutchinson County, on right bank 25 ft upstream from highway bridge, 0.7 mi upstream from mouth, 0.4 mi downstream from South Branch Lonetree Creek, and 1.0 mi southwest of Olivet.

DRAINAGE AREA.--112 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,180 ft, from topographic map.

REMARKS.--Records fair except those for winter period, Nov. 23 to Feb. 24, and period of beaver activity, Aug. 17 to Sept. 30, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,090 ft³/s Mar. 31, 1983 (gage height, 9.96 ft); no flow for many days in 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,090 ft³/s at 1015 hours, Mar. 31 (gage height, 9.96 ft); minimum daily discharge, 0.15 ft³/s Sept. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.46	6.4	9.0	4.0	3.0	59	462	14	3.3	102	3.6	.20
2	1.9	6.6	10	4.0	2.5	51	225	215	3.3	81	3.3	.20
3	1.1	6.4	10	4.0	2.5	50	118	310	3.4	55	3.0	.15
4	.54	6.2	10	4.0	2.5	48	66	141	3.6	37	2.7	.20
5	.16	6.2	10	4.0	2.5	118	48	73	3.5	25	2.5	.70
6	.62	6.2	8.0	4.0	2.5	342	46	40	3.3	16	2.4	.70
7	1.8	6.0	5.0	4.0	2.5	408	51	31	3.2	11	2.3	.60
8	5.5	6.3	3.0	4.0	2.3	100	52	23	3.2	8.0	2.0	.60
9	11	6.5	3.0	5.0	2.3	60	42	18	2.9	6.3	2.0	.60
10	11	8.6	3.0	6.0	2.0	40	35	14	2.9	5.1	1.8	.60
11	15	15	3.0	6.0	2.0	30	28	11	2.7	4.7	1.7	.60
12	13	39	3.0	5.0	2.5	40	41	10	2.7	4.3	1.7	.60
13	10	64	3.0	5.0	10	91	407	8.9	3.1	4.0	1.7	.60
14	9.2	40	3.0	5.0	25	77	210	8.2	3.7	3.7	1.7	.65
15	9.0	25	3.0	5.0	30	61	166	7.5	3.4	3.1	1.6	.70
16	8.4	20	3.0	4.0	50	97	276	7.0	3.0	5.2	1.5	.60
17	7.6	17	3.0	4.0	180	78	220	6.7	3.9	5.4	1.3	.60
18	7.9	14	4.0	4.5	250	80	188	7.5	4.8	5.8	.97	.55
19	7.0	15	3.0	5.0	330	70	155	8.1	4.2	13	.56	.55
20	7.7	56	3.0	5.0	240	45	109	7.5	61	15	.50	.50
21	7.4	50	3.0	4.5	120	31	66	6.9	146	9.9	.50	.50
22	7.0	30	4.0	4.5	110	28	39	6.3	182	6.8	.47	.45
23	7.3	25	3.0	4.0	130	23	27	5.6	184	6.7	.37	.45
24	7.4	20	3.0	4.0	110	22	20	5.4	149	5.1	.35	.40
25	7.5	15	3.0	4.0	94	20	16	4.8	140	4.9	.35	.40
26	7.3	12	3.0	4.0	61	19	14	4.5	55	4.0	.35	.30
27	7.3	10	3.0	4.0	73	14	11	4.4	24	3.9	.30	.30
28	7.0	9.0	3.0	4.0	78	17	11	4.0	44	4.0	.25	.25
29	7.4	8.0	4.0	4.0	---	31	11	3.8	117	4.8	.25	.30
30	7.4	8.0	4.0	3.5	---	229	11	3.8	132	5.6	.20	.40
31	6.9	---	4.0	3.0	---	808	---	3.6	---	5.4	.20	---
TOTAL	208.78	557.4	139.0	135.0	1920.1	3187	3171	1014.5	1298.1	471.7	42.42	14.25
MEAN	6.73	18.6	4.48	4.35	68.6	103	106	32.7	43.3	15.2	1.37	.48
MAX	15	64	10	6.0	330	808	462	310	184	102	3.6	.70
MIN	.16	6.0	3.0	3.0	2.0	14	11	3.6	2.7	3.1	.20	.15
AC-FT	414	1110	276	268	3810	6320	6290	2010	2570	936	84	28

CAL YR 1982 TOTAL 1993.36 MEAN 5.46 MAX 200 MIN .00 AC-FT 3950
WTR YR 1983 TOTAL 12159.25 MEAN 33.3 MAX 808 MIN .15 AC-FT 24120

06478420 LONETREE CREEK AT OLIVET, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

REMARKS.--Records poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 500 mg/L Mar. 31, 1983; minimum daily mean, 0 mg/L on many days in 1982.
SEDIMENT LOADS: Maximum daily, 1,090 tons Mar. 31, 1983; minimum daily, 0 ton on many days in 1982 and 1983.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 500 mg/L Mar. 31; minimum daily mean, 10 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 1,090 tons Mar. 31; minimum daily, 0 ton Aug. 23 to Sept. 4, 26-29.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	1500	.29	16.0	--	--	--
NOV						
16...	1550	17	.0	--	--	--
DEC						
16...	1400	3.0	.0	--	--	--
JAN						
11...	1530	6.3	.0	--	--	--
FEB						
09...	1010	2.3	.0	--	--	--
18...	1530	251	.0	--	--	--
23...	1445	124	1.0	--	--	--
MAR						
01...	1620	59	3.5	--	--	--
09...	1020	57	.0	43	6.6	99
APR						
13...	1535	484	1.5	--	--	--
28...	0945	11	13.0	--	--	--
JUN						
14...	1710	3.9	19.5	--	--	--
21...	1830	170	28.0	46	21	93
27...	1605	17	22.5	--	--	--
JUL						
11...	1850	4.4	23.5	--	--	--
AUG						
23...	1540	.41	24.5	--	--	--

06478420 LONETREE CREEK AT OLIVET, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.46	40	.05	6.4	10	.17	9.0	50	1.2
2	1.9	80	.41	6.6	10	.18	10	70	1.9
3	1.1	70	.21	6.4	10	.17	10	70	1.9
4	.54	60	.09	6.2	10	.17	10	70	1.9
5	.16	55	.02	6.2	10	.17	10	70	1.9
6	.62	60	.10	6.2	10	.17	8.0	65	1.4
7	1.8	65	.32	6.0	10	.16	5.0	60	.81
8	5.5	100	1.5	6.3	10	.17	3.0	55	.45
9	11	140	4.2	6.5	10	.18	3.0	55	.45
10	11	140	4.2	8.6	10	.23	3.0	55	.45
11	15	200	8.1	15	16	.65	3.0	55	.45
12	13	150	5.3	39	20	2.1	3.0	55	.45
13	10	50	1.4	64	30	5.2	3.0	55	.45
14	9.2	30	.75	40	20	2.2	3.0	55	.45
15	9.0	30	.73	25	15	1.0	3.0	55	.45
16	8.4	30	.68	20	13	.70	3.0	55	.45
17	7.6	25	.51	17	10	.46	3.0	55	.45
18	7.9	25	.53	14	10	.38	4.0	55	.59
19	7.0	25	.47	15	50	2.0	3.0	55	.45
20	7.7	20	.42	56	100	15	3.0	55	.45
21	7.4	20	.40	50	90	12	3.0	55	.45
22	7.0	15	.28	30	80	6.5	4.0	55	.59
23	7.3	15	.30	25	60	4.1	3.0	55	.45
24	7.4	15	.30	20	50	2.7	3.0	55	.45
25	7.5	15	.30	15	50	2.0	3.0	55	.45
26	7.3	10	.20	12	50	1.6	3.0	55	.45
27	7.3	10	.20	10	45	1.2	3.0	55	.45
28	7.0	10	.19	9.0	45	1.1	3.0	55	.45
29	7.4	10	.20	8.0	45	.97	4.0	55	.59
30	7.4	10	.20	8.0	45	.97	4.0	55	.59
31	6.9	10	.19	---	---	---	4.0	55	.59
TOTAL	208.78	---	32.75	557.4	---	64.60	139.0	---	22.51
		JANUARY			FEBRUARY			MARCH	
1	4.0	55	.59	3.0	10	.08	59	10	1.6
2	4.0	55	.59	2.5	10	.07	51	20	2.8
3	4.0	55	.59	2.5	10	.07	50	30	4.1
4	4.0	55	.59	2.5	10	.07	48	50	6.5
5	4.0	55	.59	2.5	10	.07	118	100	32
6	4.0	55	.59	2.5	10	.07	342	200	185
7	4.0	55	.59	2.5	10	.07	408	300	330
8	4.0	55	.59	2.3	10	.06	100	100	27
9	5.0	60	.81	2.3	10	.06	60	40	6.5
10	6.0	65	1.1	2.0	10	.05	40	30	3.2
11	6.0	70	1.1	2.0	10	.05	30	20	1.6
12	5.0	50	.68	2.5	15	.10	40	50	5.4
13	5.0	50	.68	10	20	.54	91	100	25
14	5.0	50	.68	25	30	2.0	77	90	19
15	5.0	50	.68	30	40	3.2	61	80	13
16	4.0	50	.54	50	50	6.8	97	100	26
17	4.0	50	.54	180	100	49	78	90	19
18	4.5	50	.61	250	150	101	80	80	17
19	5.0	55	.74	330	200	178	70	70	13
20	5.0	60	.81	240	80	52	45	60	7.3
21	4.5	50	.61	120	60	19	31	50	4.2
22	4.5	45	.55	110	50	15	28	50	3.8
23	4.0	40	.43	130	70	25	23	50	3.1
24	4.0	30	.32	110	50	15	22	50	3.0
25	4.0	30	.32	94	30	7.6	20	50	2.7
26	4.0	30	.32	61	20	3.3	19	50	2.6
27	4.0	30	.32	73	15	3.0	14	50	1.9
28	4.0	30	.32	78	10	2.1	17	100	4.6
29	4.0	30	.32	---	---	---	31	200	17
30	3.5	20	.19	---	---	---	229	300	185
31	3.0	10	.08	---	---	---	808	500	1090
TOTAL	135.0	---	17.47	1920.1	---	483.36	3187	---	2062.9

06478420 LONETREE CREEK AT OLIVET, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	462	300	374	14	150	5.7	3.3	50	.45
2	225	200	121	215	200	116	3.3	50	.45
3	118	100	32	310	300	251	3.4	55	.50
4	66	80	14	141	200	76	3.6	60	.58
5	48	60	7.8	73	180	35	3.5	55	.52
6	46	50	6.2	40	160	17	3.3	55	.49
7	51	40	5.5	31	140	12	3.2	50	.43
8	52	40	5.6	23	120	7.5	3.2	50	.43
9	42	30	3.4	18	110	5.3	2.9	50	.39
10	35	25	2.4	14	100	3.8	2.9	45	.35
11	28	20	1.5	11	90	2.7	2.7	45	.33
12	41	100	11	10	80	2.2	2.7	45	.33
13	407	300	330	8.9	80	1.9	3.1	70	.59
14	210	200	113	8.2	70	1.5	3.7	100	1.0
15	166	150	67	7.5	70	1.4	3.4	50	.46
16	276	200	149	7.0	60	1.1	3.0	20	.16
17	220	150	89	6.7	60	1.1	3.9	20	.21
18	188	140	71	7.5	70	1.4	4.8	25	.32
19	155	130	54	8.1	100	2.2	4.2	25	.28
20	109	120	35	7.5	90	1.8	61	30	4.9
21	66	120	21	6.9	90	1.7	146	100	39
22	39	110	12	6.3	85	1.4	182	200	98
23	27	100	7.3	5.6	80	1.2	184	250	124
24	20	100	5.4	5.4	75	1.1	149	200	80
25	16	90	3.9	4.8	70	.91	140	100	38
26	14	90	3.4	4.5	65	.79	55	80	12
27	11	90	2.7	4.4	60	.71	24	60	3.9
28	11	85	2.5	4.0	60	.65	44	100	12
29	11	85	2.5	3.8	60	.62	117	200	63
30	11	90	2.7	3.8	55	.56	132	300	107
31	---	---	---	3.6	55	.53	---	---	---
TOTAL	3171	---	1555.8	1014.5	---	556.77	1298.1	---	590.07
		JULY			AUGUST			SEPTEMBER	
1	102	260	72	3.6	30	.29	.20	10	.00
2	81	210	46	3.3	25	.22	.20	10	.00
3	55	180	27	3.0	20	.16	.15	10	.00
4	37	170	17	2.7	20	.15	.20	10	.00
5	25	160	11	2.5	20	.14	.70	10	.02
6	16	150	6.5	2.4	18	.12	.70	10	.02
7	11	130	3.9	2.3	16	.10	.60	10	.02
8	8.0	130	2.8	2.0	15	.08	.60	10	.02
9	6.3	120	2.0	2.0	14	.08	.60	10	.02
10	5.1	120	1.7	1.8	13	.06	.60	10	.02
11	4.7	110	1.4	1.7	12	.06	.60	10	.02
12	4.3	100	1.2	1.7	12	.06	.60	10	.02
13	4.0	80	.86	1.7	12	.06	.60	10	.02
14	3.7	70	.70	1.7	12	.06	.65	10	.02
15	3.1	50	.42	1.6	12	.05	.70	10	.02
16	5.2	60	.84	1.5	12	.05	.60	10	.02
17	5.4	70	1.0	1.3	11	.04	.60	10	.02
18	5.8	80	1.3	.97	10	.03	.55	10	.01
19	13	100	3.5	.56	10	.02	.55	10	.01
20	15	110	4.5	.50	10	.01	.50	10	.01
21	9.9	80	2.1	.50	10	.01	.50	10	.01
22	6.8	60	1.1	.47	10	.01	.45	10	.01
23	6.7	50	.90	.37	10	.00	.45	10	.01
24	5.1	40	.55	.35	10	.00	.40	10	.01
25	4.9	30	.40	.35	10	.00	.40	10	.01
26	4.0	30	.32	.35	10	.00	.30	10	.00
27	3.9	30	.32	.30	10	.00	.30	10	.00
28	4.0	30	.32	.25	10	.00	.25	10	.00
29	4.8	40	.52	.25	10	.00	.30	10	.00
30	5.6	50	.76	.20	10	.00	.40	10	.01
31	5.4	40	.58	.20	10	.00	---	---	---
TOTAL	471.7	---	213.49	42.42	---	1.86	14.25	---	0.35

06478500 JAMES RIVER NEAR SCOTLAND, SD

LOCATION.--Lat 43°11'09", long 97°38'07", in SW¼SW¼ sec.30, T.97 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 0.3 mi upstream from Dawson Creek and 5.2 mi northeast of Scotland.

DRAINAGE AREA.--21,550 mi², approximately, of which about 4,790 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 956: 1937-38. WSP 1279: 1932, 1948.

GAGE.--Water-stage recorder and rock and earth control. Datum of gage is 1,168.07 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, at site 0.25 mi downstream at present datum.

REMARKS.--Records good except those for winter period, Nov. 13 to Feb. 27, which are fair. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 527 mi upstream since May 1953. Occasional backwater caused by Dawson Creek; reverse flow occurred for part of May 15, 1961, from information by local residents.

AVERAGE DISCHARGE.--55 years, 372 ft³/s (269,500 acre-ft/yr); median of yearly mean discharges, 200 ft³/s (145,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,200 ft³/s Apr. 3, 1962 (gage height, 18.74 ft); no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,510 ft³/s at 0930 hours, June 24 (gage height, 13.31 ft); minimum daily discharge, 62 ft³/s Feb. 10-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	156	290	164	83	1080	2760	1150	681	2250	1300	376
2	122	152	295	158	80	850	2550	1760	662	2200	870	372
3	120	152	295	150	78	757	2290	2430	649	2080	623	360
4	114	152	295	148	71	710	2000	2470	636	1930	514	349
5	110	152	300	145	68	739	1730	2250	610	1720	457	342
6	116	152	285	144	66	1420	1560	1990	568	1460	427	333
7	124	152	265	144	66	2090	1510	1760	527	998	404	305
8	137	152	205	144	66	1990	1500	1550	501	711	393	287
9	262	160	205	147	64	1200	1490	1360	488	603	382	276
10	349	192	205	147	62	950	1450	1200	475	494	376	281
11	315	290	200	150	62	1000	1370	1110	463	433	371	288
12	267	589	197	150	62	970	1300	1070	445	371	360	281
13	228	469	184	150	62	1280	1760	1030	451	320	360	269
14	206	460	184	150	68	1460	2350	986	501	280	366	265
15	194	445	184	150	78	1390	2370	972	514	251	376	267
16	191	360	180	150	96	1450	2700	968	508	310	376	269
17	196	310	180	150	210	1400	2790	963	482	415	385	268
18	205	288	180	150	723	1280	2690	954	488	649	390	256
19	230	365	180	142	1000	1200	2600	940	494	723	385	248
20	253	693	180	137	1650	1030	2460	922	914	860	368	246
21	243	726	179	129	1700	890	2250	909	2290	668	376	245
22	228	623	179	122	1650	789	2060	904	3040	439	388	236
23	227	371	179	114	1600	723	1870	895	3330	330	406	223
24	222	335	179	110	1600	656	1720	875	3450	255	414	203
25	217	345	169	105	1550	589	1600	860	3180	223	420	196
26	200	350	134	99	1500	575	1460	828	2530	196	424	200
27	178	310	173	92	1400	575	1360	800	2050	180	428	199
28	166	310	171	93	1270	575	1280	789	1860	192	427	183
29	165	295	171	93	---	630	1210	759	1940	457	409	171
30	161	290	171	88	---	1010	1170	735	2180	1060	387	171
31	156	---	167	88	---	2250	---	699	---	1460	382	---
TOTAL	6003	9796	6361	4103	16985	33508	57210	36888	36907	24518	13944	7965
MEAN	194	327	205	132	607	1081	1907	1190	1230	791	450	266
MAX	349	726	300	164	1700	2250	2790	2470	3450	2250	1300	376
MIN	101	152	134	88	62	575	1170	699	445	180	360	171
AC-FT	11910	19430	12620	8140	33690	66460	113500	73170	73210	48630	27660	15800

CAL YR 1982 TOTAL 114859.0 MEAN 315 MAX 2340 MIN 9.2 AC-FT 227800
WTR YR 1983 TOTAL 254188.0 MEAN 696 MAX 3450 MIN 62 AC-FT 504200

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956-64, 1967-73, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to Sept. 30, 1981.
WATER TEMPERATURES: January 1953 to September 1969, October 1974 to Sept. 30, 1983 (discontinued).
SUSPENDED SEDIMENT DISCHARGE: Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

REMARKS.--Prior to October 1969, continuous temperature thermograph at station. Sediment discharge records fair during periods of daily observer samples, poor thereafter.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,660 micromhos Jan. 9, 1977; minimum daily, 300 micromhos Mar. 19, 1977.
WATER TEMPERATURES: Maximum, 32.0°C Aug. 1, 2, 1957; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 953 mg/L June 21, 1983; minimum daily mean, 12 mg/L Nov. 8, 1982.
SEDIMENT LOADS: Maximum daily, 5,890 tons June 21, 1983; minimum daily, 1.7 tons Oct. 2, 11, 1981.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum observed daily, 31.0°C July 20-22, Aug. 4, 6; minimum daily, 0.0°C Mar. 9.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 953 mg/L June 21; minimum daily mean, 12 mg/L Nov. 8.
SEDIMENT LOADS: Maximum daily, 5,890 tons June 21; minimum daily, 3.3 tons Feb. 10-13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT											
05...	1645	104	740	--	17.0	--	--	--	--	--	--
NOV											
17...	1300	279	1230	8.4	.5	25	8.9	940	>2000	490	250
DEC											
27...	1415	170	1310	--	.5	--	--	--	--	--	--
JAN											
27...	1600	90	1680	--	.0	--	--	--	--	--	--
FEB											
24...	1530	--	610	7.4	1.0	40	8.2	E240	E8600	230	110
MAR											
03...	1145	766	--	--	4.5	--	--	--	--	--	--
09...	1500	1130	940	--	.0	--	--	--	--	--	--
APR											
02...	1600	2420	860	--	5.5	--	--	--	--	--	--
MAY											
03...	1600	2730	880	7.3	12.0	50	--	900	1800	350	190
JUN											
08...	1050	501	930	--	21.0	--	--	--	--	--	--
27...	1720	1990	700	--	22.5	--	--	--	--	--	--
JUL											
21...	0955	692	860	--	29.0	--	--	--	--	--	--
AUG											
17...	1130	381	1420	8.2	30.0	17	--	K50	>2000	420	87
SEP											
21...	1130	247	860	--	12.0	--	--	--	--	--	--

> More than.
E Estimated.
K Non-ideal colony count.

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
OCT											
05...	--	--	--	--	--	--	--	--	--	--	--
NOV											
17...	110	53	97	29	2	16	400	244	60	.30	16
DEC											
27...	--	--	--	--	--	--	--	--	--	--	--
JAN											
27...	--	--	--	--	--	--	--	--	--	--	--
FEB											
24...	50	25	25	18	.7	14	170	118	12	.10	9.8
MAR											
03...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
APR											
02...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	76	39	47	22	1	14	293	160	19	.20	7.3
JUN											
08...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
21...	--	--	--	--	--	--	--	--	--	--	--
AUG											
17...	92	46	140	41	3	21	310	333	85	.40	5.0
SEP											
21...	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO4) (71886)
OCT											
05...	--	--	--	--	--	--	--	--	--	--	--
NOV											
17...	958	900	1.3	722	.500	.260	.33	3.0	.300	.430	1.3
DEC											
27...	--	--	--	--	--	--	--	--	--	--	--
JAN											
27...	--	--	--	--	--	--	--	--	--	--	--
FEB											
24...	389	390	.53	--	.700	.970	1.1	3.7	.360	.540	1.7
MAR											
03...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
APR											
02...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	576	590	.78	4250	.570	.340	.44	2.4	.170	.340	1.0
JUN											
08...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
JUL											
21...	--	--	--	--	--	--	--	--	--	--	--
AUG											
17...	923	900	1.3	949	.100	.150	.19	2.1	.150	.220	.67
SEP											
21...	--	--	--	--	--	--	--	--	--	--	--

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
NOV 17...	1300	--	4	--	<1	--	<1	<3	--	2	--
FEB 24...	1530	--	3	--	2	--	<1	<3	--	9	--
MAY 03...	1600	--	2	--	1	--	<1	<3	--	4	--
AUG 17...	1130	--	5	--	<1	--	<1	<3	--	3	--

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 17...	15	--	2	--	130	--	<.1	--	1	--	9
FEB 24...	110	--	<1	--	300	--	<.1	--	1	--	33
MAY 03...	33	--	<1	--	70	--	<.1	--	1	--	50
AUG 17...	10	--	2	--	290	--	1.1	--	1	--	29

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
OCT 05...	1645	104	76	21	98	--	--	--	--	--	--
NOV 17...	1300	279	89	67	100	--	--	--	--	--	--
DEC 27...	1415	170	--	--	--	--	--	--	--	--	--
JAN 27...	1600	90	--	--	--	--	--	--	--	--	--
MAR 03...	1145	766	--	--	--	--	--	--	--	--	--
09...	1500	1130	--	--	--	--	--	--	--	--	--
APR 02...	1600	2420	--	--	--	--	--	--	--	--	--
MAY 03...	1600	2730	--	--	--	--	--	--	--	--	--
JUN 08...	1050	501	--	--	--	--	--	--	--	--	--
27...	1720	1990	--	--	--	--	--	--	--	--	--
JUL 21...	0955	692	--	--	--	--	--	--	--	--	--
AUG 17...	1130	381	85	87	94	--	--	--	--	--	--
SEP 21...	1130	247	--	--	--	--	--	--	--	--	--

< Less than.

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	10.5	2.5		---	2.0	6.0	11.0	17.0	24.0	27.0	28.0
2	14.5	9.0	4.0		---	3.0	5.5	10.0	---	26.0	30.0	27.5
3	16.0	6.0	---		---	6.5	5.0	10.5	19.0	26.0	29.0	27.5
4	16.5	3.5	4.0		---	7.0	5.5	12.0	---	24.5	31.0	26.5
5	17.0	4.0	3.0		---	8.5	5.5	15.0	---	25.0	30.5	25.0
6	14.5	5.0	2.0		---	8.0	5.0	16.0	---	25.0	31.0	23.0
7	15.0	6.0	1.0		---	3.5	6.0	15.0	---	27.0	30.0	23.0
8	14.5	4.0	.5		---	1.0	6.0	16.0	21.0	26.5	30.0	24.0
9	13.5	4.5	.5		---	.0	6.0	16.0	21.5	27.0	29.0	25.0
10	13.0	4.5	1.0		---	1.0	6.5	16.5	23.0	27.0	29.5	23.0
11	11.5	4.0	.5		---	1.0	8.5	17.0	22.0	25.0	27.5	21.0
12	11.0	1.0	1.0		---	3.0	5.5	17.0	21.5	27.0	27.0	20.0
13	10.0	.5	1.0		---	4.0	4.0	17.5	20.0	27.5	27.0	19.0
14	11.0	1.0	.5		---	4.0	3.5	14.5	20.0	28.0	27.0	18.0
15	13.5	1.0	.5		---	3.5	4.5	14.5	20.0	28.0	28.0	18.0
16	12.0	2.0	.5		---	2.5	5.5	15.5	22.0	28.0	29.0	19.0
17	14.5	1.0	1.0		---	2.5	5.5	15.0	20.0	27.5	30.0	19.0
18	14.0	1.0	1.5		---	2.0	5.5	14.0	20.0	28.0	29.0	18.5
19	9.5	2.5	1.0		---	2.0	6.0	14.0	20.0	29.5	30.0	17.0
20	8.0	4.0	1.0		---	2.0	8.0	14.5	22.0	31.0	29.5	13.5
21	7.5	3.5	1.5		---	2.5	9.0	17.0	23.5	31.0	28.0	12.5
22	9.0	1.0	1.5		---	3.0	10.5	17.0	25.5	31.0	28.0	12.0
23	9.5	.5	.5		---	4.0	12.0	17.5	26.0	28.5	26.5	11.5
24	11.0	1.0	.5		---	3.5	12.0	19.0	28.0	27.0	26.5	13.0
25	11.5	1.5	.5		---	3.0	14.0	19.0	28.0	27.0	27.0	16.0
26	12.5	.5	---		---	2.0	14.5	19.0	28.5	27.0	29.0	16.0
27	12.5	.5	---		---	2.0	15.0	---	24.0	27.5	28.0	17.0
28	12.0	1.0	---		1.0	4.0	14.5	21.5	21.5	27.0	29.0	---
29	11.5	1.5	---		---	4.0	13.5	---	20.5	28.0	28.5	19.0
30	10.5	2.5	---		---	5.0	13.0	18.0	21.0	26.5	27.5	20.0
31	11.0	---	---		---	7.0	---	---	---	27.0	27.5	---

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	101	75	20	156	66	28	290	16	13
2	122	74	24	152	69	28	295	16	13
3	120	70	23	152	61	25	295	17	14
4	114	71	22	152	48	20	295	17	14
5	110	76	23	152	27	11	300	16	13
6	116	74	23	152	19	7.8	285	15	12
7	124	63	21	152	15	6.2	265	13	9.3
8	137	77	28	152	12	4.9	205	14	7.7
9	262	85	60	160	14	6.0	205	14	7.7
10	349	86	81	192	15	7.8	205	16	8.9
11	315	79	67	290	33	26	200	16	8.6
12	267	55	40	589	90	143	197	16	8.5
13	228	47	29	469	67	85	184	17	8.4
14	206	43	24	460	63	78	184	18	8.9
15	194	48	25	445	52	62	184	18	8.9
16	191	51	26	360	42	41	180	19	9.2
17	196	55	29	310	30	25	180	20	9.7
18	205	69	38	288	25	19	180	20	9.7
19	230	65	40	365	27	27	180	18	8.7
20	253	54	37	693	78	146	180	18	8.7
21	243	45	30	726	93	182	179	19	9.2
22	228	53	33	623	92	155	179	20	9.7
23	227	65	40	371	72	72	179	20	9.7
24	222	68	41	335	54	49	179	20	9.7
25	217	70	41	345	45	42	169	20	9.1
26	200	72	39	350	37	35	134	20	7.2
27	178	72	35	310	26	22	173	20	9.3
28	166	66	30	310	19	16	171	20	9.2
29	165	66	29	295	19	15	171	20	9.2
30	161	66	29	290	18	14	171	20	9.2
31	156	66	28	---	---	---	167	20	9.0
TOTAL	6003	---	1055	9796	---	1398.7	6361	---	302.4
		JANUARY			FEBRUARY			MARCH	
1	164	20	8.9	83	20	4.5	1080	94	274
2	158	20	8.5	80	20	4.3	850	70	161
3	150	20	8.1	78	20	4.2	757	62	127
4	148	20	8.0	71	20	3.8	710	68	130
5	145	20	7.8	68	20	3.7	739	112	223
6	144	20	7.8	66	20	3.6	1420	197	755
7	144	20	7.8	66	20	3.6	2090	251	1420
8	144	20	7.8	66	20	3.6	1990	250	1340
9	147	20	7.9	64	20	3.5	1200	163	528
10	147	20	7.9	62	20	3.3	950	125	321
11	150	20	8.1	62	20	3.3	1000	152	410
12	150	20	8.1	62	20	3.3	970	143	375
13	150	20	8.1	62	20	3.3	1260	132	456
14	150	20	8.1	68	23	4.2	1460	114	449
15	150	20	8.1	78	27	5.7	1390	92	345
16	150	20	8.1	96	29	7.5	1450	76	298
17	150	20	8.1	210	31	18	1400	69	261
18	150	20	8.1	723	52	102	1280	56	194
19	142	20	7.7	1000	69	186	1200	51	165
20	137	20	7.4	1650	160	713	1030	50	139
21	129	20	7.0	1700	187	858	890	43	103
22	122	20	6.6	1650	98	437	789	38	81
23	114	20	6.2	1600	59	255	723	42	82
24	110	20	5.9	1600	78	337	656	45	80
25	105	20	5.7	1550	95	398	589	45	72
26	99	20	5.3	1500	101	409	575	38	59
27	92	20	5.0	1400	108	408	575	35	54
28	93	20	5.0	1270	107	367	575	30	47
29	93	20	5.0	---	---	---	630	41	70
30	88	20	4.8	---	---	---	1010	89	243
31	88	20	4.8	---	---	---	2250	292	1770
TOTAL	4103	---	221.7	16985	---	4553.4	33508	---	11032

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	2760	268	2000	1150	225	699	681	113	208
2	2550	125	861	1760	245	1160	662	112	200
3	2290	102	631	2430	192	1260	649	112	196
4	2000	99	535	2470	174	1160	636	112	192
5	1730	93	434	2250	158	960	610	113	186
6	1560	79	333	1990	155	833	568	114	175
7	1510	74	302	1760	153	727	527	116	165
8	1500	76	308	1550	153	640	501	119	161
9	1490	81	326	1360	150	551	488	136	179
10	1450	126	493	1200	150	486	475	141	181
11	1370	150	555	1110	144	432	463	145	181
12	1300	171	600	1070	141	407	445	155	186
13	1760	202	960	1030	135	375	451	154	188
14	2350	204	1290	986	130	346	501	144	195
15	2370	186	1190	972	122	320	514	140	194
16	2700	178	1300	968	122	319	508	137	188
17	2790	177	1330	963	126	328	482	141	183
18	2690	167	1210	954	136	350	488	145	191
19	2600	153	1070	940	136	345	494	145	193
20	2460	112	744	922	132	329	914	776	1920
21	2250	69	419	909	136	334	2290	953	5890
22	2060	65	362	904	138	337	3040	223	1830
23	1870	103	520	895	139	336	3330	140	1260
24	1720	153	711	875	134	317	3450	108	1010
25	1600	171	739	860	133	309	3180	99	850
26	1460	174	686	828	129	288	2530	90	615
27	1360	175	643	800	127	274	2050	266	1470
28	1280	187	646	789	121	258	1860	252	1270
29	1210	191	624	759	120	246	1940	195	1020
30	1170	205	648	735	117	232	2180	156	918
31	---	---	---	699	116	219	---	---	---
TOTAL	57210	---	22470	36888	---	15177	36907	---	21595
		JULY			AUGUST			SEPTEMBER	
1	2250	129	784	1300	169	593	376	53	56
2	2200	135	802	870	132	310	372	50	50
3	2080	152	854	623	103	173	360	49	48
4	1930	180	938	514	100	139	349	46	43
5	1720	194	901	457	100	123	342	46	42
6	1460	219	863	427	100	115	333	48	43
7	998	253	682	404	100	109	305	48	40
8	711	242	465	393	100	106	287	52	40
9	603	228	371	382	98	101	276	52	39
10	494	229	305	376	97	98	281	44	33
11	433	235	275	371	96	96	288	72	56
12	371	239	239	360	96	93	281	75	57
13	320	229	198	360	96	93	269	75	54
14	280	216	163	366	97	96	265	66	47
15	251	205	139	376	92	93	267	62	45
16	310	246	206	376	90	91	269	62	45
17	415	242	271	385	87	90	268	63	46
18	649	231	405	390	84	88	256	64	44
19	723	230	449	385	84	87	248	64	43
20	860	223	518	368	89	88	246	58	39
21	668	150	271	376	98	99	245	50	33
22	439	88	104	388	102	107	236	44	28
23	330	82	73	406	98	107	223	44	2[illegible]
24	255	86	59	414	97	108	203	48	26
25	223	88	53	420	94	107	196	56	30
26	196	88	47	424	88	101	200	62	33
27	180	102	50	428	88	102	199	66	35
28	192	152	79	427	83	96	183	60	30
29	457	157	194	409	82	91	171	58	27
30	1060	184	527	387	70	73	171	59	27
31	1460	174	686	382	55	57	---	---	---
TOTAL	24518	---	11971	13944	---	3830	7965	---	1203

06478513 JAMES RIVER NEAR YANKTON, SD

LOCATION.--Lat 42°59'45", long 97°22'10", in NE¼NW¼ sec.5, T.94 N., R.55 W., Yankton County, Hydrologic Unit 10160011, on left bank at downstream side of highway bridge, 3.9 mi upstream from Beaver Creek, 17.2 mi upstream from mouth, and 9 mi northeast of Yankton.

DRAINAGE AREA.--21,800 mi^2, approximately, of which about 4,790 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct. 1, 1981, to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,153.38 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, Nov. 23 to Feb. 28, which are poor. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 527 mi upstream since May 1953. Occasional backwater caused by Beaver Creek. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft^3/s June 27, 1983 (gage height, 12.19 ft); minimum daily discharge, 0.78 ft^3/s Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,760 ft^3/s at 1415 hours, June 27 (gage height, 12.19 ft); maximum gage height, 12.61 ft Feb. 27 (backwater from ice); minimum daily discharge, 70 ft^3/s Feb. 9-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	196	310	190	85	1740	2340	1240	607	2210	1200	327
2	108	191	310	185	80	1400	2540	1880	587	2220	1100	323
3	117	184	300	185	80	1140	2630	2230	572	2210	785	317
4	121	183	290	180	80	986	2530	2350	557	2160	558	307
5	113	183	290	180	80	1010	2310	2450	546	2070	457	298
6	124	187	290	170	75	1420	2090	2430	533	1860	413	293
7	119	192	290	170	75	2060	1840	2300	513	1510	386	282
8	126	192	270	170	75	2150	1650	2070	489	1110	366	272
9	180	201	250	170	70	2080	1550	1740	468	812	351	261
10	252	238	230	180	70	1690	1500	1460	461	657	345	248
11	329	271	200	180	70	1290	1430	1250	452	568	336	245
12	327	359	200	185	70	1270	1450	1120	444	509	333	251
13	299	459	200	185	70	1340	1740	1050	442	468	334	243
14	268	490	200	185	80	1410	1990	983	449	436	331	237
15	241	467	190	185	90	1560	2160	942	458	406	335	239
16	224	495	190	185	100	1580	2380	912	462	394	341	236
17	219	476	190	180	150	1550	2540	896	480	434	342	237
18	218	428	190	175	250	1510	2670	900	489	514	339	235
19	231	398	190	170	500	1400	2680	896	469	598	342	220
20	249	456	190	170	900	1270	2670	870	529	679	334	217
21	265	620	190	160	1200	1090	2610	844	1110	775	327	216
22	271	668	190	150	1500	912	2490	823	1820	686	325	218
23	264	560	180	140	1600	783	2310	797	2120	572	334	213
24	259	370	180	130	1700	702	2140	782	2280	473	347	207
25	253	420	180	120	1800	636	1950	760	2520	437	357	193
26	246	430	180	110	1850	606	1740	742	2690	413	366	184
27	237	430	180	100	1800	575	1540	721	2740	366	365	183
28	228	380	180	95	1750	566	1430	689	2600	326	362	184
29	213	320	200	90	---	607	1330	664	2340	324	358	176
30	205	310	200	85	---	951	1250	645	2210	470	347	169
31	202	---	195	85	---	1910	---	626	---	889	334	---
TOTAL	6596	10754	6825	4845	16250	39194	61480	38062	32437	27556	13150	7231
MEAN	213	358	220	156	580	1264	2049	1228	1081	839	424	241
MAX	329	668	310	190	1850	2150	2680	2450	2740	2220	1200	327
MIN	88	183	180	85	70	566	1250	626	442	324	325	169
AC-FT	13080	21330	13540	9610	32230	77740	121900	75500	64340	54660	26080	14340

CAL YR 1982 TOTAL 123580.0 MEAN 339 MAX 2400 MIN 8.0 AC-FT 245100
WTR YR 1983 TOTAL 264380.0 MEAN 724 MAX 2740 MIN 70 AC-FT 524400

06478513 JAMES RIVER NEAR YANKTON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: Oct. 1, 1981 to Sept. 30, 1983 (discontinued).

REMARKS.--Records fair except those for Oct. 1 to Feb. 28, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 828 mg/L June 21, 1983; minimum daily mean, 30 mg/L Dec. 11, 13-18, 1981, Jan. 10-15, 1982.
SEDIMENT LOADS: Maximum daily, 2,810 tons June 1, 1982; minimum daily, 0.53 ton Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 828 mg/L June 21; minimum daily mean, 43 mg/L Mar. 26 and 27.
SEDIMENT LOADS: Maximum daily, 2,580 tons Mar. 31; minimum daily, 9.5 ton Feb. 9-13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
06...	1530	--	14.5	107	--	89
06...	1610	126	14.5	--	--	--
NOV						
17...	1550	463	1.5	--	--	--
DEC						
16...	0845	188	.0	--	--	--
JAN						
12...	1115	183	.0	--	--	--
FEB						
04...	1140	80	.0	--	--	--
26...	1505	1840	.0	--	--	--
MAR						
01...	1400	1710	1.5	--	--	--
02...	1120	1400	3.0	--	--	--
09...	1625	2080	1.0	--	--	--
APR						
13...	1100	1610	5.0	120	522	97
28...	1350	1400	15.0	--	--	--
JUN						
15...	1505	460	23.5	--	--	--
22...	1220	1880	25.0	--	--	--
28...	1005	2580	22.0	--	--	--
JUL						
13...	0935	466	26.5	--	--	--
AUG						
25...	1145	359	26.0	--	--	--

06478513 JAMES RIVER NEAR YANKTON, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	88	70	17	196	50	26	310	290	243
2	108	80	23	191	50	26	310	290	243
3	117	90	28	184	50	25	300	280	227
4	121	100	33	183	50	25	290	280	219
5	113	100	31	183	50	25	290	280	219
6	124	110	37	187	50	25	290	280	219
7	119	120	39	192	50	26	290	280	219
8	126	130	44	192	60	31	270	270	197
9	180	140	68	201	60	33	250	260	175
10	252	150	102	238	60	39	230	250	155
11	329	140	124	271	70	51	200	230	124
12	327	120	106	359	80	78	200	230	124
13	299	110	89	459	90	112	200	230	124
14	268	100	72	490	100	132	200	230	124
15	241	90	59	467	120	151	190	230	118
16	224	80	48	495	110	147	190	230	118
17	219	70	41	476	100	129	190	220	113
18	218	60	35	428	90	104	190	220	113
19	231	70	44	398	90	97	190	220	113
20	249	80	54	456	150	185	190	220	113
21	265	90	64	620	250	418	190	220	113
22	271	80	59	668	400	721	190	220	113
23	264	70	50	560	350	529	180	190	92
24	259	70	49	370	300	300	180	190	92
25	253	70	48	420	300	340	180	190	92
26	246	70	46	430	350	406	180	190	92
27	237	70	45	430	320	372	180	190	92
28	226	60	37	380	300	308	180	190	92
29	213	60	35	320	290	251	200	190	103
30	205	60	33	310	290	243	200	190	103
31	202	60	33	---	---	---	195	190	100
TOTAL	6596	---	1593	10734	---	5355	6825	---	4384
		JANUARY			FEBRUARY			MARCH	
1	190	180	92	85	60	14	1740	153	719
2	185	180	90	80	50	11	1400	152	575
3	185	180	90	80	50	11	1140	164	505
4	180	180	87	80	50	11	986	295	785
5	180	170	83	80	50	11	1010	322	878
6	170	170	78	75	50	10	1420	402	1540
7	170	170	78	75	50	10	2060	326	1810
8	170	170	78	75	50	10	2150	300	1740
9	170	170	78	70	50	9.5	2080	308	1730
10	180	170	83	70	50	9.5	1690	310	1410
11	180	170	83	70	50	9.5	1290	307	1070
12	185	170	85	70	50	9.5	1270	233	799
13	185	170	85	70	50	9.5	1340	210	760
14	185	170	85	80	50	11	1410	222	845
15	185	170	85	90	50	12	1560	201	847
16	185	170	85	100	60	16	1580	189	806
17	180	170	83	150	70	28	1550	172	720
18	175	170	80	250	80	54	1510	172	701
19	170	160	73	500	100	135	1400	165	624
20	170	150	69	900	150	364	1270	160	549
21	160	140	60	1200	200	648	1090	142	418
22	150	130	53	1500	220	891	912	85	209
23	140	120	45	1600	230	994	783	55	116
24	130	110	39	1700	250	1150	702	52	99
25	120	100	32	1800	230	1120	636	50	86
26	110	90	27	1850	210	1050	606	43	70
27	100	80	22	1800	190	923	575	43	67
28	95	70	18	1750	180	850	566	50	76
29	90	60	15	---	---	---	607	50	82
30	85	60	14	---	---	---	951	316	811
31	85	60	14	---	---	---	1910	501	2580
TOTAL	4845	---	1989	16250	---	8381.5	39194	---	24027

06478513 JAMES RIVER NEAR YANKTON, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	2340	335	2120	1240	201	673	607	213	349
2	2540	297	2040	1880	292	1480	587	214	339
3	2630	238	1690	2230	230	1380	572	224	346
4	2530	194	1330	2350	158	1000	557	245	368
5	2310	180	1120	2450	125	827	546	248	366
6	2090	175	988	2430	96	630	533	256	368
7	1840	172	854	2300	112	696	513	272	377
8	1650	168	748	2070	102	570	489	275	363
9	1550	166	695	1740	111	521	468	281	355
10	1500	163	660	1460	115	453	461	295	367
11	1430	146	564	1250	121	408	452	297	362
12	1450	133	521	1120	136	411	444	308	369
13	1740	116	545	1050	145	411	442	309	369
14	1990	121	650	983	147	390	449	299	362
15	2160	125	729	942	145	369	458	290	359
16	2380	134	861	912	166	409	462	334	417
17	2540	117	802	896	209	506	480	368	477
18	2670	105	757	900	207	503	489	317	419
19	2680	149	1080	896	185	448	469	290	367
20	2670	228	1640	870	194	456	529	466	666
21	2610	239	1680	944	201	458	1110	828	2480
22	2490	229	1540	823	202	449	1820	478	2350
23	2310	216	1350	797	214	461	2120	270	1550
24	2140	202	1170	782	220	465	2280	174	1070
25	1950	191	1010	760	220	451	2520	120	816
26	1740	191	897	742	221	443	2690	78	567
27	1540	183	761	721	221	430	2740	70	518
28	1430	181	699	689	211	393	2600	91	639
29	1330	172	618	664	211	378	2340	102	644
30	1250	173	584	645	218	380	2210	106	633
31	---	---	---	626	213	360	---	---	---
TOTAL	61480	---	30703	38062	---	17209	32437	---	19032
		JULY			AUGUST			SEPTEMBER	
1	2210	99	591	1200	191	619	327	244	215
2	2220	83	498	1100	147	437	323	243	212
3	2210	84	501	785	96	203	317	239	205
4	2160	102	595	558	78	118	307	238	197
5	2070	146	816	457	92	114	298	238	191
6	1860	157	788	413	115	128	293	242	191
7	1510	175	713	386	154	160	282	244	186
8	1110	209	626	366	166	164	272	231	170
9	812	225	493	351	160	152	261	227	160
10	657	254	451	345	163	152	248	219	147
11	568	282	432	336	161	146	245	209	138
12	509	285	392	333	148	133	251	208	141
13	468	275	347	334	144	130	243	206	135
14	436	264	311	331	144	129	237	205	131
15	406	261	286	335	144	130	239	200	129
16	394	256	272	341	154	142	236	198	126
17	434	260	305	342	167	154	237	187	120
18	514	300	416	339	185	169	235	186	118
19	598	313	505	342	184	170	220	186	110
20	679	317	581	334	173	156	217	168	98
21	775	332	695	327	186	164	216	146	85
22	686	249	461	325	204	179	218	136	80
23	572	178	275	334	205	185	213	130	75
24	473	151	193	347	250	234	207	129	72
25	437	204	241	357	278	268	193	129	67
26	413	191	213	366	288	285	184	128	64
27	366	151	149	365	274	270	183	127	63
28	326	145	128	362	268	262	184	133	66
29	324	146	128	358	262	253	176	146	69
30	470	191	242	347	262	245	169	141	64
31	889	212	509	334	256	231	---	---	---
TOTAL	27556	---	13153	13150	---	6282	7231	---	3825

06478514 BEAVER CREEK NEAR YANKTON, SD

LOCATION.--Lat 42°57'32", long 94°21'40", in NE¼SE¼ sec.17, T.97 N., R.55 W., Yankton County, Hydrologic Unit 10160011, on right bank 30 ft downstream from highway bridge, 6.8 mi northeast of Yankton, 8.9 mi downstream from Beaver Lake, and 1.2 mi upstream from mouth.

DRAINAGE AREA.--144 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,161.14 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,110 ft^3/s May 20, 1982 (gage height, 9.67 ft); no flow for many days in 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 730 ft^3/s at 1500 hours, Feb. 20 (gage height, 9.67 ft), backwater from ice; minimum daily discharge, 0.01 ft^3/s Oct. 4-7, Jan. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.12	8.1	.10	.02	151	512	24	.40	14	.40	.20
2	.05	.09	8.9	.10	.03	121	328	211	.40	8.6	.40	.20
3	.02	.10	9.2	.10	.02	108	223	473	.40	6.7	1.0	.30
4	.01	.10	7.5	.10	.02	100	165	306	.30	5.4	.90	.25
5	.01	.10	7.5	.10	.02	146	100	187	.20	3.3	.80	.30
6	.01	.09	5.2	.10	.02	307	88	130	.20	2.8	.70	.30
7	.01	.06	4.0	.10	.02	439	103	145	.10	1.3	.60	.30
8	.07	.04	3.0	.10	.02	178	105	74	.10	.57	.50	.25
9	.30	.13	2.5	.10	.02	123	80	43	.05	.40	.40	.25
10	15	9.1	2.5	.10	.02	128	61	29	.05	.30	.30	.25
11	19	15	2.0	.10	.02	101	46	20	.05	.20	.20	.20
12	11	40	2.0	.07	.02	105	87	17	.04	.08	.20	.20
13	5.5	35	2.0	.09	.02	115	400	13	.04	.07	.20	.20
14	2.5	35	2.0	.08	.02	81	294	10	.03	.05	.30	.20
15	1.5	30	2.0	.08	.02	119	253	7.4	.02	.03	.20	.50
16	.77	25	1.5	.08	.03	160	396	7.0	.07	.10	.20	.40
17	.30	15	1.0	.07	.05	129	363	6.1	2.1	.08	.20	.40
18	.18	12	.90	.07	.10	128	248	8.0	8.6	.10	.20	.30
19	.81	20	.80	.07	100	118	160	10	8.1	.05	.20	.20
20	2.6	53	.70	.06	350	84	113	10	6.1	.05	.20	.20
21	.36	55	.70	.06	390	40	82	8.0	6.1	.05	.20	.20
22	.39	45	.70	.05	255	30	61	7.0	5.8	5.0	.20	.20
23	.53	30	.60	.04	290	25	49	4.5	3.8	3.0	.20	.15
24	.53	25	.50	.04	444	20	38	3.0	2.6	2.0	.20	.15
25	.52	20	.30	.03	242	15	29	2.5	1.9	1.0	.20	.15
26	.42	15	.25	.02	190	10	26	2.0	1.6	1.0	.20	.15
27	.38	11	.20	.03	208	9.0	18	1.5	8.5	1.5	.20	.15
28	.41	8.9	.20	.01	210	8.0	15	1.0	16	1.0	.20	.15
29	.45	6.6	.15	.02	---	26	13	1.0	24	1.0	.20	.15
30	.21	6.0	.10	.02	---	163	12	.50	16	.50	.20	.20
31	.15	---	.10	.02	---	555	---	.50	---	.50	.20	---
TOTAL	64.06	512.43	77.10	2.11	2679.49	3842.0	4448	1762.00	113.65	60.73	10.30	7.05
MEAN	2.07	17.1	2.49	.068	95.7	124	148	56.8	3.79	1.96	.33	.24
MAX	19	55	9.2	.10	444	555	512	473	24	14	1.0	.50
MIN	.01	.04	.10	.01	.02	8.0	12	.50	.02	.03	.20	.15
AC-FT	127	1020	153	4.2	5310	7620	8820	3490	225	120	20	14

CAL YR 1982 TOTAL 4982.27 MEAN 13.7 MAX 703 MIN .00 AC-FT 9880
WTR YR 1983 TOTAL 13578.92 MEAN 37.2 MAX 555 MIN .01 AC-FT 26930

06478514 BEAVER CREEK NEAR YANKTON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE.--Oct. 1, 1981, to Sept. 30, 1983 (discontinued).

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,100 mg/L May 21, 1982; minimum daily mean, 0 mg/L on many days in 1982.
SEDIMENT LOADS: Maximum daily, 3,990 tons May 21, 1982; minimum daily, 0 ton on many days in 1982 and 1982.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,000 mg/L Mar. 29; minimum daily mean, 10 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 2,100 tons Mar. 31; minimum daily, 0 ton on many days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.07	10	.00	.12	10	.00	8.1	40	.87
2	.05	10	.00	.09	10	.00	8.9	50	1.2
3	.02	10	.00	.10	10	.00	9.2	60	1.5
4	.01	10	.00	.10	10	.00	7.5	40	.81
5	.01	10	.00	.10	10	.00	7.5	30	.61
6	.01	10	.00	.09	10	.00	5.2	20	.28
7	.01	10	.00	.06	10	.00	4.0	20	.22
8	.07	10	.00	.04	10	.00	3.0	15	.12
9	.30	20	.02	.13	10	.00	2.5	15	.10
10	15	50	2.0	9.1	10	.25	2.5	15	.10
11	19	200	10	15	100	4.1	2.0	10	.05
12	11	140	4.2	40	400	43	2.0	10	.05
13	5.5	110	1.6	35	300	28	2.0	10	.05
14	2.5	45	.30	35	250	24	2.0	10	.05
15	1.5	30	.12	30	200	16	2.0	10	.05
16	.77	20	.04	25	150	10	1.5	10	.04
17	.30	10	.00	15	130	5.3	1.0	10	.03
18	.18	10	.00	12	200	6.5	.90	10	.02
19	.81	10	.02	20	250	13	.80	10	.02
20	2.6	50	.35	53	500	72	.70	10	.02
21	.36	30	.03	55	450	67	.70	10	.02
22	.39	30	.03	45	300	36	.70	10	.02
23	.53	40	.06	30	200	16	.60	10	.02
24	.53	30	.04	25	150	10	.50	10	.01
25	.52	25	.04	20	100	5.4	.30	10	.00
26	.42	20	.02	15	50	2.0	.25	10	.00
27	.38	20	.02	11	40	1.2	.20	10	.00
28	.41	25	.03	8.9	35	.84	.20	10	.00
29	.45	15	.02	6.6	30	.53	.15	10	.00
30	.21	10	.00	6.0	30	.49	.10	10	.00
31	.15	10	.00	---	---	---	.10	10	.00
TOTAL	64.06	---	18.94	512.43	---	361.61	77.10	---	6.26

06478514 BEAVER CREEK NEAR YANKTON, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.10	10	.00	.02	10	.00	151	340	139
2	.10	10	.00	.03	10	.00	121	300	98
3	.10	10	.00	.02	10	.00	109	250	73
4	.10	10	.00	.02	10	.00	100	200	54
5	.10	10	.00	.02	10	.00	146	300	118
6	.10	10	.00	.02	10	.00	307	500	414
7	.10	10	.00	.02	10	.00	435	1000	1190
8	.10	10	.00	.02	10	.00	178	600	364
9	.10	10	.00	.02	10	.00	123	460	153
10	.10	10	.00	.02	10	.00	129	400	138
11	.10	10	.00	.02	10	.00	101	300	82
12	.07	10	.00	.02	10	.00	105	350	99
13	.09	10	.00	.02	10	.00	115	300	93
14	.08	10	.00	.02	10	.00	81	250	55
15	.08	10	.00	.02	10	.00	119	350	112
16	.08	10	.00	.03	10	.00	160	500	216
17	.07	10	.00	.05	10	.00	129	400	139
18	.07	10	.00	.10	10	.00	128	400	138
19	.07	10	.00	100	200	54	118	350	112
20	.06	10	.00	350	400	378	84	350	79
21	.06	10	.00	390	500	526	40	300	32
22	.05	10	.00	255	400	275	30	300	24
23	.04	10	.00	290	500	391	25	300	20
24	.04	10	.00	444	600	719	20	250	13
25	.03	10	.00	242	800	523	15	250	10
26	.02	10	.00	190	350	180	10	250	6.8
27	.03	10	.00	208	400	225	9.0	250	6.1
28	.01	10	.00	210	450	255	8.0	250	5.4
29	.02	10	.00	---	---	---	26	2000	140
30	.02	10	.00	---	---	---	163	1700	748
31	.02	10	.00	---	---	---	555	1400	2100
TOTAL	2.11	---	0.00	2679.49	---	3526.00	3842.0	---	6991.3
		APRIL			MAY			JUNE	
1	512	1300	1800	24	130	8.4	.40	10	.01
2	328	1200	1060	211	300	171	.40	10	.01
3	223	1100	662	473	500	639	.40	10	.01
4	145	900	352	306	700	578	.30	10	.00
5	100	800	216	187	500	252	.20	10	.00
6	88	800	190	130	300	105	.20	10	.00
7	103	900	250	145	300	117	.10	10	.00
8	105	1000	283	74	200	40	.10	10	.00
9	80	700	151	43	120	14	.05	10	.00
10	61	500	82	29	100	7.8	.05	10	.00
11	46	400	50	20	80	4.3	.05	10	.00
12	87	900	211	17	60	2.8	.04	10	.00
13	400	1500	1620	13	50	1.8	.04	10	.00
14	294	1200	953	10	45	1.2	.03	10	.00
15	253	1000	683	7.4	40	.80	.02	10	.00
16	396	1200	1280	7.0	35	.66	.07	10	.00
17	363	950	931	6.1	30	.49	2.1	60	.34
18	248	400	268	8.0	80	1.7	8.6	300	7.0
19	160	200	86	10	100	2.7	8.1	250	5.5
20	113	150	46	10	150	4.1	6.1	230	3.8
21	82	100	22	8.0	120	2.6	6.1	200	3.3
22	61	90	15	7.0	90	1.7	5.8	170	2.7
23	49	80	11	4.5	70	.85	3.8	150	1.5
24	38	70	7.2	3.0	60	.49	2.6	130	.91
25	29	60	4.7	2.5	45	.30	1.9	110	.56
26	26	50	3.5	2.0	35	.19	1.6	100	.43
27	18	40	1.9	1.5	25	.10	8.5	120	2.8
28	15	30	1.2	1.0	20	.05	16	140	6.0
29	13	25	.88	1.0	15	.04	24	200	13
30	12	25	.81	.50	10	.01	16	150	6.5
31	---	---	---	.50	10	.01	---	---	---
TOTAL	4448	---	11242.19	1762.00	---	1959.09	113.65	---	54.37

06478514 BEAVER CREEK NEAR YANKTON, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	14	130	4.9	.40	15	.02	.20	10	.00
2	8.6	110	2.6	.40	10	.01	.20	10	.00
3	6.7	90	1.6	1.0	20	.05	.30	15	.01
4	5.4	60	.87	.90	15	.04	.25	15	.01
5	3.3	40	.36	.80	15	.03	.30	15	.01
6	2.8	35	.26	.70	10	.02	.30	15	.01
7	1.3	30	.11	.60	10	.02	.30	15	.01
8	.57	25	.04	.50	10	.01	.25	15	.01
9	.40	20	.02	.40	10	.01	.25	15	.01
10	.30	15	.01	.30	10	.00	.25	15	.01
11	.20	10	.00	.20	10	.00	.20	10	.00
12	.08	10	.00	.20	10	.00	.20	10	.00
13	.07	10	.00	.20	10	.00	.20	10	.00
14	.05	10	.00	.30	15	.01	.20	10	.00
15	.03	10	.00	.20	10	.00	.50	20	.03
16	.10	10	.00	.20	10	.00	.40	15	.02
17	.08	10	.00	.20	10	.00	.40	15	.02
18	.10	10	.00	.20	10	.00	.30	10	.00
19	.05	10	.00	.20	10	.00	.20	10	.00
20	.05	10	.00	.20	10	.00	.20	10	.00
21	.05	10	.00	.20	10	.00	.20	10	.00
22	5.0	100	1.4	.20	10	.00	.20	10	.00
23	3.0	50	.41	.20	10	.00	.15	10	.00
24	2.0	45	.24	.20	10	.00	.15	10	.00
25	1.0	40	.11	.20	10	.00	.15	10	.00
26	1.0	35	.09	.20	10	.00	.15	10	.00
27	1.5	35	.14	.20	10	.00	.15	10	.00
28	1.0	30	.08	.20	10	.00	.15	10	.00
29	1.0	25	.07	.20	10	.00	.15	10	.00
30	.50	25	.03	.20	10	.00	.20	10	.00
31	.50	20	.03	.20	10	.00	---	---	---
TOTAL	60.73	---	13.37	10.30	---	0.22	7.05	---	0.15

06478515 MISSOURI RIVER NEAR GAYVILLE, SD

STAGE RECORDS

LOCATION.--Lat 42°51'01", long 97°13'12", in SW¼NW¼ sec.27, T.93 N., R.54 W., Yankton County, Hydrologic Unit 10170101, 3.8 mi southwest of Gayville, 4.1 mi downstream from James River and at mile 796.0.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Stage regulated by Lewis and Clark Lake 15.0 mi upstream (see station 06467000). Gage heights for period of October 1969 to September 1980 in files of Corps of Engineers.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.50	49.86	50.24	---	48.13	48.41	47.78	48.02	48.61	46.45	49.84	49.65
2	49.50	49.85	50.07	---	48.09	48.35	46.85	48.07	48.66	46.49	49.84	49.66
3	49.49	49.92	49.89	---	48.17	48.16	46.29	48.12	48.65	46.48	49.79	49.65
4	49.51	50.15	49.61	---	48.40	47.69	46.51	47.92	48.67	46.54	49.73	49.65
5	49.51	50.20	49.61	---	48.39	47.38	47.11	47.66	48.65	46.76	49.72	49.61
6	49.51	50.19	49.45	---	48.35	47.37	47.27	47.53	48.66	47.19	49.71	49.55
7	49.51	50.18	49.42	---	48.37	47.33	47.29	47.49	48.67	47.32	49.71	49.51
8	49.57	50.17	49.03	---	48.30	47.09	47.27	47.52	48.66	47.53	49.70	49.66
9	49.59	50.20	48.93	---	48.25	47.07	47.30	47.54	48.67	47.70	49.68	49.46
10	49.59	50.21	48.65	---	48.15	47.21	47.30	47.69	48.66	47.91	49.69	49.59
11	49.58	50.20	48.44	---	48.18	47.20	47.36	47.71	48.56	47.99	49.68	49.59
12	49.57	50.19	48.36	---	48.09	47.49	47.46	47.69	48.54	48.24	49.69	49.56
13	49.62	50.19	48.36	48.10	48.08	47.59	47.33	47.75	48.46	48.62	49.70	49.50
14	49.65	50.17	48.32	48.01	48.00	47.64	46.71	47.86	48.05	48.86	49.68	49.57
15	49.80	50.18	---	48.09	48.02	47.30	46.16	48.05	47.42	49.02	49.69	49.44
16	49.85	50.14	---	47.87	47.99	47.06	46.38	48.21	47.41	49.13	49.65	49.46
17	49.88	50.27	---	47.87	47.96	47.13	46.49	48.33	47.53	49.17	49.61	49.51
18	49.87	50.47	---	48.25	47.97	47.31	46.49	48.32	47.44	49.27	49.62	49.48
19	49.89	50.46	---	48.19	47.95	47.59	46.60	48.32	47.45	49.69	49.56	49.29
20	49.86	50.45	---	48.26	48.00	47.72	46.74	48.31	47.33	49.76	49.63	49.43
21	49.87	50.46	---	48.10	48.07	47.86	46.89	48.32	46.42	49.74	49.65	49.32
22	49.89	50.44	---	48.12	48.09	47.92	47.13	48.28	45.70	49.76	49.63	49.46
23	49.89	50.43	---	48.07	48.10	47.96	47.33	48.31	45.72	49.79	49.63	49.46
24	49.89	50.43	---	48.07	48.10	48.10	47.55	48.44	46.31	49.68	49.64	49.53
25	49.89	50.43	---	48.06	48.12	48.16	47.62	48.50	46.50	49.72	49.65	49.51
26	49.89	50.42	---	48.14	48.12	48.18	47.68	48.52	46.61	49.75	49.65	49.49
27	49.90	50.42	---	48.39	48.31	48.17	47.76	48.49	46.74	49.75	49.64	49.39
28	49.90	50.42	---	48.28	48.50	48.17	47.86	48.52	46.19	49.72	49.66	49.53
29	49.87	50.45	---	48.05	---	48.21	47.90	48.51	45.67	49.71	49.66	49.51
30	49.86	50.45	---	48.01	---	48.23	47.96	48.51	45.77	49.73	49.62	49.55
31	49.86	---	---	48.07	---	48.23	---	48.53	---	49.78	49.63	---

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 43°47'39", long 97°22'02", in SW¼ sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right wingwall at downstream end of culvert on county highway, 2.0 mi upstream from small left-bank tributary and 5.2 mi northeast of Salem.

DRAINAGE AREA.--51.0 mi^2, approximately.

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder and concrete dam.

REMARKS.--Records fair except those for winter period, Nov. 13 to Mar. 15, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--17 years, 2.90 ft^3/s (2,100 acre-ft/yr); median of yearly mean discharges, 1.5 ft^3/s (1,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 676 ft^3/s Mar. 21, 1978 (gage height, 7.79 ft); maximum gage height, 8.53 ft Apr. 5, 1969 (backwater from ice); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 13	0100	42	5.44	Apr. 18	1900	117	6.32
Nov. 21	--	55	--	May 4	0400	42	5.50
Feb. 19	1730	198	ice jam	June 29	0430	10	4.97
Mar. 8	--	*210	ice jam	July 1	0400	40	5.46
Apr. 2	2000	67	5.76	July 6	1000	30	5.35

No flow Oct. 1-5, Aug. 9 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	4.0	10	.85	.26	38	55	12	.51	32	1.8	.00
2	.00	3.6	12	.85	.22	42	66	37	.40	20	1.2	.00
3	.00	3.2	11	.90	.20	66	61	41	.38	11	.81	.00
4	.00	2.9	12	.95	.16	74	49	42	.32	11	.51	.00
5	.00	2.7	13	1.0	.14	78	39	37	.26	22	.32	.00
6	.03	2.5	11	1.1	.13	97	32	32	.23	29	.19	.00
7	.07	2.4	9.5	1.1	.12	176	24	31	.19	22	.12	.00
8	.16	2.3	8.5	1.2	.12	190	23	22	.18	15	.05	.00
9	4.6	2.6	6.0	1.2	.12	140	22	20	.13	12	.00	.00
10	4.4	5.0	4.0	1.2	.12	93	18	18	.12	9.2	.00	.00
11	10	7.1	3.0	1.2	.12	75	14	15	.07	7.4	.00	.00
12	40	9.4	2.0	1.2	.13	65	19	11	.05	6.1	.00	.00
13	41	11	1.4	1.2	.15	60	39	10	.12	5.0	.00	.00
14	37	12	1.3	1.2	.19	50	42	8.6	.34	4.1	.00	.00
15	28	13	1.3	1.1	.50	45	50	7.5	.36	3.0	.00	.00
16	17	13	1.3	1.1	2.0	41	69	6.6	.23	4.6	.00	.00
17	13	13	1.3	1.1	4.5	35	104	6.0	.20	4.5	.00	.00
18	9.8	14	1.3	1.0	110	32	114	5.5	.26	3.6	.00	.00
19	8.9	16	1.4	1.0	140	29	110	5.3	.26	3.0	.00	.00
20	8.1	38	1.5	.95	188	22	95	4.7	.71	2.8	.00	.00
21	7.5	50	1.7	.90	159	16	76	4.0	.85	4.6	.00	.00
22	7.4	45	1.9	.85	126	15	60	3.5	.58	6.6	.00	.00
23	6.7	40	1.9	.75	108	14	47	2.9	.32	7.0	.00	.00
24	6.2	30	1.6	.70	101	13	38	2.4	.19	6.6	.00	.00
25	6.1	25	1.3	.65	64	12	26	2.1	.13	6.0	.00	.00
26	6.0	18	1.1	.60	48	11	18	1.7	.78	5.1	.00	.00
27	5.8	12	.90	.55	46	10	13	1.3	5.3	4.6	.00	.00
28	5.5	10	.80	.50	41	10	12	1.0	7.2	4.0	.00	.00
29	5.2	9.0	.80	.45	---	10	12	.78	9.8	3.3	.00	.00
30	4.7	9.5	.80	.40	---	13	11	.58	7.8	2.8	.00	.00
31	4.4	---	.80	.35	---	34	---	.54	---	2.3	.00	---
TOTAL	287.56	426.2	126.40	28.10	1140.20	1606	1358	393.00	38.27	280.2	5.00	.00
MEAN	9.28	14.2	4.08	.91	40.7	51.8	45.3	12.7	1.28	9.04	.16	.000
MAX	41	50	13	1.2	188	190	114	42	9.8	32	1.8	.00
MIN	.00	2.3	.80	.35	.12	10	11	.54	.05	2.3	.00	.00
AC-FT	570	845	251	56	2260	3190	2690	780	76	556	9.9	.00

CAL YR 1982 TOTAL 2370.56 MEAN 6.49 MAX 174 MIN .00 AC-FT 4700
WTR YR 1983 TOTAL 5684.93 MEAN 15.6 MAX 190 MIN .00 AC-FT 11280

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE¼NE¼ sec.10, T.99 N., R.54 W., Turner County, Hydrologic Unit 10170102, on left downstream wingwall of bridge, 3.7 mi northwest of Parker and 13.9 mi upstream from confluence with East Fork Vermillion River.

DRAINAGE AREA.--370 mi², approximately.

PERIOD OF RECORD.--August 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,340 ft, from topographic map. Prior to Oct. 11, 1973, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for winter periods, Dec. 8 to Feb. 24 and Mar. 4-14, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--22 years, 24.7 ft³/s (17,900 acre-ft/yr); median of yearly mean discharges, 8.5 ft³/s (6,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,340 ft³/s Mar. 28, 1962 (gage height, 12.33 ft); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 11	1545	153	3.79	Apr. 13	1845	1160	8.62
Nov. 15	--	220	Ice jam	Apr. 15	2230	902	7.75
Nov. 21	1400	512	6.35	May 2	1915	659	6.76
Nov. 25	1600	572	6.65	June 21	0700	1770	10.19
Mar. 7	1145	*1900	*a10.77	June 30	0230	785	7.45
Mar. 31	1730	1020	8.16				

a Backwater from ice.
Minimum daily discharge, 0.09 ft³/s Oct. 4-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	16	68	9.4	7.0	785	855	77	7.5	549	73	2.0
2	.12	14	60	9.0	6.6	604	576	516	7.0	412	63	2.2
3	.11	14	67	8.8	6.3	527	415	580	6.5	335	45	1.9
4	.09	12	68	8.8	6.0	500	318	382	8.0	254	34	1.9
5	.09	11	60	8.8	5.8	650	249	243	7.0	188	28	1.9
6	1.5	11	50	9.0	5.5	1150	218	176	6.5	137	24	2.2
7	.82	11	43	9.2	5.4	1750	202	143	6.2	107	19	1.2
8	2.1	10	41	9.3	5.2	900	176	106	6.2	81	16	.67
9	76	10	36	9.5	5.2	550	154	72	5.9	64	13	.36
10	97	14	32	9.6	5.1	500	129	50	5.4	52	11	.36
11	135	34	28	9.8	5.0	500	109	40	5.4	42	9.4	.44
12	129	110	26	9.8	5.2	430	266	35	5.1	39	8.0	.52
13	96	130	25	9.8	5.5	450	1040	32	5.9	36	6.8	.52
14	73	186	23	9.8	6.0	380	793	29	7.3	32	5.9	.52
15	60	200	20	9.8	6.1	358	726	26	7.9	29	4.9	.67
16	48	160	16	9.8	9.0	349	867	23	7.6	29	4.3	.52
17	40	100	15	9.8	14	312	671	22	8.2	60	3.5	.50
18	35	79	14	9.8	23	307	524	20	9.1	110	3.0	.50
19	32	96	16	9.6	53	276	461	19	9.5	94	2.8	.50
20	31	296	14	9.4	600	218	360	19	484	96	2.0	.50
21	29	470	14	9.2	1000	178	268	18	1520	68	2.0	.50
22	31	346	15	9.0	840	156	203	18	790	47	1.9	.50
23	36	140	17	8.9	880	138	160	16	406	39	1.9	.50
24	37	135	21	8.8	940	123	128	15	258	41	2.2	.50
25	36	201	16	8.6	844	115	107	14	189	43	2.0	.50
26	33	106	13	8.4	561	92	89	12	147	39	2.8	.50
27	30	82	15	8.2	687	72	76	10	134	39	3.0	.50
28	27	60	15	8.0	927	94	69	9.5	223	36	2.8	.50
29	23	51	15	7.8	---	149	64	9.0	625	50	2.6	.70
30	21	47	11	7.6	---	461	62	8.5	734	47	2.0	.60
31	19	---	10	7.4	---	974	---	8.0	---	60	2.0	---
TOTAL	1176.95	3152	866	280.7	7463.9	14048	10335	2748.0	5642.2	3255	401.8	25.18
MEAN	38.0	105	27.9	9.05	267	453	345	88.6	188	105	13.0	.84
MAX	135	470	68	9.8	1000	1750	1040	580	1520	549	73	2.2
MIN	.09	10	10	7.4	5.0	72	62	8.0	5.1	29	1.9	.36
AC-FT	2330	6250	1720	557	14800	27860	20500	5450	11190	6460	797	50

CAL YR 1982 TOTAL 8294.61 MEAN 22.7 MAX 470 MIN .00 AC-FT 16450
WTR YR 1983 TOTAL 49394.73 MEAN 135 MAX 1750 MIN .09 AC-FT 97970

06479000 VERMILLION RIVER NEAR WAKONDA, SD

LOCATION.--Lat 42°59'27", long 96°57'49", in SW¼NW¼ sec.2, T.94 N., R.52 W., Clay County, Hydrologic Unit 10170102, on left bank 40 ft downstream from bridge on State Highway 19, 4.3 mi downstream from Frog Creek, 7.4 mi southeast of Wakonda, and 29.6 mi upstream from mouth.

DRAINAGE AREA.--1,680 mi^2, approximately.

PERIOD OF RECORD.--October 1945 to Sept. 30, 1983 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,150.9 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 2, 1954, nonrecording gage and crest-stage gage at site 40 ft upstream at same datum. Since Dec. 27, 1951, supplementary nonrecording gage on relief bridge.

REMARKS.--Records poor. At times during periods of high stage, part of flow leaves main channel through levee breaks and bypasses gage through overflow channel on left bank. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--38 years, 125 ft^3/s (90,560 acre-ft/yr); median of yearly mean discharges, 77 ft^3/s (55,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,880 ft^3/s Apr. 8, 1969; maximum gage height, 17.17 ft Apr. 6, 1969; no flow at times in 1951, 1956-59, 1975-77, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 23	1015	1040	10.72	June 22	2100	3300	16.99
Mar. 7	1930	4900	16.46	June 22	2215	--	*17.03
Apr. 3	0800	3340	14.89	June 28	0700	*5020	16.71
Apr. 16	0015	3380	14.97	July 30	1100	1090	11.96
May 6	0700	2480	13.75				

Minimum daily discharge, 11 ft^3/s Oct. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	63	349	75	55	2900	2660	700	210	4040	511	52
2	15	55	333	75	55	3100	3160	1340	201	3920	397	52
3	14	48	310	75	55	3300	3300	1860	195	3340	357	52
4	14	37	309	75	55	3300	3040	2060	187	2520	326	50
5	13	39	316	75	50	3300	2660	2220	179	1930	288	49
6	11	35	309	75	50	3600	2420	2370	171	1570	256	54
7	11	33	287	75	50	4530	2180	1920	164	1320	241	55
8	11	31	241	75	50	4500	2010	1660	157	1140	233	52
9	23	29	184	75	50	4400	1840	1610	150	1020	217	49
10	44	64	180	75	50	4400	1590	1340	111	1020	194	48
11	168	139	180	75	50	4100	1260	1080	117	830	175	46
12	344	485	180	75	50	3560	1220	890	115	710	133	44
13	367	579	180	75	50	3240	2490	800	122	610	115	44
14	372	621	177	75	50	2980	2690	710	173	530	125	42
15	336	661	165	70	55	2820	3170	600	219	492	122	44
16	283	688	145	70	60	2620	3340	559	242	429	116	44
17	231	649	135	70	65	2430	3240	483	227	414	108	44
18	184	592	125	70	75	2250	3120	459	362	590	102	42
19	158	543	120	65	90	2170	2930	452	442	833	93	42
20	155	564	115	65	130	2030	2700	427	1070	675	87	42
21	146	722	110	65	250	1810	2500	400	2920	518	81	40
22	142	937	100	65	600	1580	2340	375	3190	445	77	40
23	159	1020	100	65	1330	1360	2180	347	2860	401	72	40
24	196	898	95	65	1840	1180	2000	324	2820	387	68	40
25	205	748	90	65	1960	1090	1720	301	2700	362	68	40
26	184	596	80	60	2040	1050	1350	300	2400	334	68	40
27	154	539	80	60	2400	950	1100	262	2500	314	66	40
28	126	520	80	60	2700	850	970	253	4540	303	62	36
29	106	431	80	55	---	1020	840	246	4320	496	58	37
30	89	383	80	55	---	1530	750	233	4040	1050	57	38
31	75	---	75	55	---	2340	---	221	---	821	56	---
TOTAL	4349	12749	5310	2130	14315	80290	66770	26802	37104	33364	4929	1338
MEAN	140	425	171	68.7	511	2590	2226	865	1237	1076	159	44.6
MAX	372	1020	349	75	2700	4530	3340	2370	4540	4040	511	55
MIN	11	29	75	55	50	850	750	221	111	303	56	36
AC-FT	8630	25290	10530	4220	28390	159300	132400	53160	73600	66180	9780	2650

CAL YR 1982 TOTAL 41511.90 MEAN 114 MAX 1020 MIN .80 AC-FT 82340
WTR YR 1983 TOTAL 289450.00 MEAN 793 MAX 4540 MIN 11 AC-FT 574100

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD

LOCATION.--Lat 45°00'22", long 97°09'53", in NE¼NE¼NE¼ sec.16, T.118 N., R.52 W., Codington County, Hydrologic Unit 10170202, on left bank at downstream side of county highway bridge, 4.9 mi downstream from Mahoney Creek, 6.5 mi upstream from inlet-outlet to Lake Kampeska, and 7.5 mi northwest of Watertown.

DRAINAGE AREA.--1,025 mi², approximately, revised.

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR SD-78-1: 1973-74(M), 1976-77(M).

GAGE.--Water-stage recorder. Datum of gage is 1,725.81 ft National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter periods, Nov. 4-16, 20-25, and Dec. 23 to Mar. 30, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--11 years, 17.4 ft³/s (12,610 acre-ft/yr); median of yearly mean discharge, 7.7 ft³/s (5,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,720 ft³/s Mar. 30, 1978 (gage height, 11.07 ft); no flow at times in 1974-82.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 396 ft³/s at 0130 hours, Apr. 2 (gage height, 7.52 ft), no other peak above base of 300 ft³/s; minimum daily discharge, 0.02 ft³/s Jan. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	1.5	1.4	.09	.03	.37	120	18	4.2	4.2	4.0	.44
2	.06	1.4	1.5	.11	.03	.39	278	16	4.2	4.0	4.0	.42
3	.03	1.1	1.2	.10	.03	.43	146	16	3.8	6.3	4.2	.42
4	.07	.80	1.4	.11	.03	.50	114	16	3.3	6.5	3.8	.75
5	.10	.66	1.4	.11	.03	.70	84	15	2.9	7.0	2.9	1.1
6	.03	.72	1.4	.11	.03	.86	59	15	2.2	7.0	1.8	.78
7	.03	.62	1.4	.10	.05	1.1	53	18	2.0	6.0	1.2	.82
8	.14	.64	1.1	.09	.08	1.5	47	23	1.6	4.9	.94	1.9
9	.42	.68	1.1	.08	.10	1.3	43	22	1.1	4.5	.67	1.7
10	.21	.64	.80	.07	.14	.98	50	18	.80	3.8	.35	1.8
11	.24	.43	.44	.09	.24	1.3	47	18	.80	2.2	.32	1.6
12	.82	.29	.31	.13	.34	1.8	41	17	.80	2.0	.32	1.2
13	2.2	.38	.27	.11	.47	2.3	38	16	1.8	1.5	.24	.94
14	2.9	.64	.23	.09	.44	2.8	32	15	3.5	1.1	.28	.94
15	2.5	.96	.27	.08	.41	3.4	29	14	3.3	.27	1.1	1.0
16	2.1	1.3	.23	.08	.42	3.5	28	13	3.1	.27	.31	.84
17	1.7	1.8	.23	.06	.40	3.7	28	12	3.1	1.4	2.0	.80
18	1.3	2.2	.23	.05	.39	3.3	23	12	2.9	16	1.6	.80
19	1.1	2.8	.23	.05	.38	3.1	21	11	2.7	174	.94	.76
20	1.5	2.1	.23	.06	.36	2.9	21	11	2.2	104	.80	.67
21	1.6	1.8	.23	.06	.35	2.7	22	10	1.8	56	.31	.67
22	2.0	1.5	.15	.05	.39	2.5	22	9.6	1.6	40	.24	.55
23	1.9	1.3	.14	.04	.38	2.4	22	9.6	1.4	23	.21	.50
24	2.1	1.3	.12	.04	.36	2.9	22	8.8	1.0	20	.24	.51
25	2.2	1.2	.11	.03	.33	3.4	22	8.4	.94	18	.24	.32
26	2.0	1.2	.10	.02	.36	4.1	21	8.4	1.6	14	.24	.21
27	1.5	1.0	.09	.03	.39	5.2	20	7.4	2.4	8.6	.20	.22
28	1.3	.94	.08	.04	.41	6.0	18	6.3	1.4	9.3	.17	.22
29	1.3	1.1	.06	.04	---	7.2	19	5.2	3.8	7.2	.43	.18
30	1.2	1.0	.07	.04	---	8.4	18	4.9	4.2	5.3	.91	.23
31	1.3	---	.08	.04	---	13	---	4.2	---	4.7	.67	---
TOTAL	35.95	34.00	16.60	2.20	7.37	94.03	1508	398.8	70.44	563.04	35.63	23.29
MEAN	1.16	1.13	.54	.071	.26	3.03	50.3	12.9	2.35	18.2	1.15	.78
MAX	2.9	2.8	1.5	.13	.47	13	278	23	4.2	174	4.2	1.9
MIN	.03	.29	.06	.02	.03	.37	18	4.2	.80	.27	.17	.18
AC-FT	71	67	33	4.4	15	187	2990	791	140	1120	71	46

CAL YR 1982 TOTAL 2534.50 MEAN 6.94 MAX 230 MIN .00 AC-FT 5030
WTR YR 1983 TOTAL 2789.35 MEAN 7.64 MAX 278 MIN .02 AC-FT 5530

06479515 WILLOW CREEK NEAR WATERTOWN, SD

LOCATION.--Lat 44°54'17", long 97°03'31", in NE¼NW¼ sec.34, T.117 N., R.52 W., Codington County, Hydrologic Unit 10170202, on right bank 5 ft downstream from bridge, 4.7 mi upstream from mouth, and 2.8 mi east of Watertown.

DRAINAGE AREA.--125 mi^2, approximately.

PERIOD OF RECORD.--September 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,721.24 ft National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter period, Jan. 28 to Feb. 18, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--12 years, 11.6 ft^3/s (8,400 acre-ft/yr); median of yearly mean discharges, 5.7 ft^3/s (4,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,930 ft^3/s Mar. 31, 1978 (gage height, 7.02 ft); maximum gage height, 9.86 ft Mar. 15, 1972 (backwater from ice); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 480 ft^3/s at 0600 hours, Apr. 1 (gage height, 5.23 ft), no other peak above base of 200 ft^3/s; maximum gage height, 5.85 ft Feb. 9 (backwater from ice); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	.32	.47	.23	.00	2.5	224	4.5	1.2	.75	.00	.92
2	1.1	.30	.54	.26	.00	2.4	46	3.9	1.2	.68	.00	.72
3	.70	.14	.57	.33	.00	2.1	25	4.2	1.1	.77	.00	.67
4	.55	.22	.54	.28	.00	1.9	17	3.6	1.1	.66	.00	.51
5	.41	.38	.58	.30	.00	1.8	14	3.5	1.1	.66	.00	1.1
6	.33	.44	.56	.30	.01	2.2	16	4.6	1.0	.56	.00	1.1
7	.42	.28	.55	.42	.06	4.2	16	19	.97	.44	.00	.76
8	.55	.34	.52	.30	.13	5.5	16	26	.95	.34	.00	.61
9	.89	.36	.42	.34	.22	5.6	20	11	.83	.27	.00	.47
10	.71	.51	.46	.54	.34	4.2	15	7.9	.78	.14	.00	.86
11	.69	.48	.37	.46	.52	4.3	12	6.8	.65	.12	.00	1.2
12	.74	.20	.30	.22	.92	4.6	12	5.4	.67	.01	.00	.99
13	.69	.46	.30	.34	1.2	6.2	16	4.6	.89	.00	.00	.83
14	.65	.44	.33	.38	1.8	16	14	4.1	.99	.00	.00	.78
15	.56	.40	.28	.26	2.5	17	13	3.9	.89	.00	.00	1.0
16	.53	.38	.26	.14	3.5	9.2	14	3.5	.88	.00	.00	1.1
17	.50	.43	.25	.05	4.9	6.8	20	3.6	.82	.00	.00	1.1
18	.44	.46	.34	.00	7.2	5.9	25	3.3	.78	.75	.00	.97
19	.33	.46	.40	.00	13	4.7	20	3.1	.68	1.0	.03	.80
20	.31	.51	.34	.00	3.0	4.3	17	2.8	.67	.74	.07	.74
21	.45	.52	.40	.08	3.2	4.4	14	2.9	.59	.48	.02	.62
22	.43	.54	.47	.14	3.8	4.1	12	2.3	.61	.27	.02	.53
23	.42	.50	.53	.11	3.0	3.6	9.3	2.4	.61	.08	.02	.67
24	.43	.50	.58	.05	2.7	3.3	6.9	2.1	.59	.00	.00	.39
25	.42	.48	.50	.03	2.5	3.2	6.2	2.1	.52	.00	.00	.29
26	.38	.46	.42	.00	2.2	3.3	5.9	2.0	.44	.00	.00	.26
27	.36	.38	.34	.00	2.5	3.0	5.0	1.7	.45	.00	.00	.21
28	.35	.38	.38	.00	2.5	3.4	4.1	1.4	.45	.00	.00	.45
29	.35	.37	.24	.00	---	2.9	4.2	1.3	.77	.00	.02	.70
30	.30	.39	.19	.00	---	3.6	4.4	1.4	.71	.00	1.2	.83
31	.30	---	.20	.00	---	22	---	1.3	---	.00	1.3	---
TOTAL	16.05	12.03	12.65	5.56	61.70	168.0	644.0	150.2	23.89	8.72	2.68	21.78
MEAN	.52	.40	.41	.18	2.20	5.42	21.5	4.85	.80	.28	.086	.73
MAX	1.1	.54	.58	.54	13	22	224	26	1.2	1.0	1.3	1.2
MIN	.30	.14	.19	.00	.00	1.8	4.1	1.3	.44	.00	.00	.21
AC-FT	32	24	25	11	122	333	1280	298	47	17	5.3	43

CAL YR 1982 TOTAL 1369.89 MEAN 3.75 MAX 200 MIN .00 AC-FT 2720
WTR YR 1983 TOTAL 1127.26 MEAN 3.09 MAX 224 MIN .00 AC-FT 2240

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'54", long 97°02'39", in SW¼SW¼ sec.26, T.115 N., R.52 W., Hamlin County, Hydrologic Unit 10170202, on right bank at upstream side of highway bridge on State Highway 22, 3.25 mi east of intersection of U.S. Highway 81 and State Highway 22, and 1.0 mi northwest of Castlewood.

DRAINAGE AREA.--1,592 mi², approximately.

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,667.52 ft National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter period, Nov. 4 to Mar. 24, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 40.6 ft³/s (29,410 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,740 ft³/s Mar. 31, 1978 (gage height, 11.10 ft); maximum gage height, 11.24 ft Apr. 13, 1979; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 302 ft³/s at 2300 hours, Apr. 1 (gage height, 7.26 ft), no peak above base of 450 ft³/s; no flow Aug. 11-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	4.8	9.6	3.0	.50	19	132	20	9.2	3.8	1.9	2.9
2	8.9	5.2	11	2.6	.56	22	169	19	8.2	5.9	2.0	1.4
3	9.5	4.6	12	2.3	.45	27	66	19	8.8	5.6	1.8	.98
4	7.1	4.9	12	2.5	.40	30	50	19	6.6	5.1	1.3	1.3
5	6.8	5.0	11	2.7	.35	33	39	20	5.3	5.3	.98	2.5
6	5.6	6.0	10	3.0	.45	30	33	24	5.7	7.3	.70	4.1
7	5.5	5.6	9.0	2.7	.40	27	33	47	5.7	7.8	.56	3.0
8	6.7	5.2	6.6	2.9	.45	26	33	55	5.3	7.5	1.3	2.3
9	11	5.2	4.8	3.3	1.0	25	32	57	6.6	6.8	1.1	2.5
10	9.9	5.2	3.4	2.9	2.5	21	35	44	7.9	5.4	.28	2.5
11	2.7	5.0	2.5	1.8	4.0	24	31	33	8.0	3.3	.00	3.5
12	1.1	4.0	3.0	1.9	3.5	33	30	28	8.2	2.9	.00	3.2
13	.56	3.7	4.0	2.5	4.0	35	32	24	7.3	2.5	.00	1.9
14	.42	3.5	3.5	2.3	4.5	33	34	23	7.7	.98	.00	2.5
15	.28	4.0	3.2	1.9	7.0	32	32	25	12	.42	.00	2.7
16	.56	4.5	2.8	1.6	10	32	31	24	11	.98	.84	2.8
17	.56	5.0	3.3	1.1	12	33	30	21	9.9	2.5	4.3	3.9
18	.84	6.0	3.8	1.2	11	35	32	18	9.2	3.4	6.7	3.1
19	.56	7.0	4.0	1.4	11	33	34	17	8.4	5.8	5.2	3.0
20	.42	8.0	3.7	1.5	13	31	31	17	7.8	6.4	3.8	3.0
21	1.9	7.4	4.0	1.5	12	30	29	17	6.2	4.9	3.8	3.6
22	1.1	6.6	4.3	1.4	12	28	29	16	4.7	4.3	2.3	3.6
23	.98	5.4	3.7	1.1	11	30	27	16	3.7	3.3	1.7	4.2
24	3.1	5.0	3.0	1.3	10	32	27	14	3.7	2.5	2.1	3.8
25	3.2	5.6	2.3	.80	11	33	27	13	2.7	2.6	4.4	3.6
26	5.0	5.0	1.9	.50	12	32	24	15	2.0	2.9	4.2	3.6
27	5.0	5.4	2.3	.56	14	33	22	13	1.4	4.9	4.0	4.0
28	4.7	6.0	2.1	.80	17	38	22	10	1.4	4.8	2.5	3.8
29	4.3	7.0	1.8	.70	---	36	22	9.7	2.0	3.6	2.2	6.0
30	4.0	8.0	1.9	.60	---	34	22	9.0	2.4	3.2	4.5	7.7
31	4.1	---	2.3	.45	---	42	---	9.1	---	2.4	7.7	---
TOTAL	123.08	163.8	152.8	54.81	186.06	949	1190	695.8	189.0	129.08	72.16	96.98
MEAN	3.97	5.46	4.93	1.77	6.65	30.6	39.7	22.4	6.30	4.16	2.33	3.23
MAX	11	8.0	12	3.3	17	42	169	57	12	7.8	7.7	7.7
MIN	.28	3.5	1.8	.45	.35	19	22	9.0	1.4	.42	.00	.98
AC-FT	244	325	303	109	369	1880	2360	1380	375	256	143	192

CAL YR 1982 TOTAL 4053.66 MEAN 11.1 MAX 350 MIN .00 AC-FT 8040
WTR YR 1983 TOTAL 4002.57 MEAN 11.0 MAX 169 MIN .00 AC-FT 7940

06479529 STRAY HORSE CREEK NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'52", long 96°57'23", in NE¼NE¼NW¼ sec.33, T.115 N., R.51 W., Hamlin County, Hydrologic Unit 10170202, on right bank at downstream side of bridge on State Highway 22, 3.5 mi east of Castlewood, 6.4 mi upstream from mouth, and 7.0 mi north of Dempster.

DRAINAGE AREA.--73.7 mi^2, approximately.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,703.88 ft National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter period, Jan. 25 to Feb. 18, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--15 years, 10.5 ft^3/s (7,610 acre-ft/yr); median of yearly mean discharges, 6.8 ft^3/s (4,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft^3/s Apr. 7, 1969 (gage height, 14.65 ft), from rating curve extended above 3,500 ft^3/s on basis of contracted-opening measurement of peak flow; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 175 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 19	0415	309	7.72	Apr. 1	0115	*489	*8.18

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	1.0	.84	.28	.20	2.1	240	9.0	1.1	1.0	.17	.17
2	1.1	1.0	1.1	.28	.18	2.1	51	9.5	1.1	.61	.10	.09
3	1.1	.94	1.0	.28	.14	2.1	31	10	1.5	.51	.08	.04
4	.73	.87	.98	.30	.12	2.3	21	15	1.3	.50	.08	.21
5	.51	.87	.99	.28	.10	4.4	16	25	1.1	.50	.08	.33
6	.51	.87	.90	.24	.08	23	18	45	1.1	.50	.06	.40
7	.54	.90	.75	.24	.04	49	18	50	.99	.41	.05	.39
8	.61	.94	.74	.23	.10	23	18	50	.93	.32	.03	.34
9	4.0	.95	.66	.24	.20	13	20	40	.75	.33	.00	.44
10	7.3	1.2	.60	.25	.30	10	18	25	.71	.23	.00	3.6
11	7.2	1.3	.56	.24	.40	6.9	16	30	.49	.16	.00	2.3
12	4.7	1.9	.45	.23	.60	8.3	15	35	.44	.13	.00	1.1
13	3.5	1.8	.37	.22	1.0	19	19	27	.79	.09	.04	.75
14	2.9	1.4	.32	.21	2.0	19	13	15	1.5	.03	.07	.63
15	2.4	1.4	.31	.21	3.0	14	14	7.0	1.2	.00	.18	.73
16	1.9	1.4	.30	.19	10	11	17	4.9	1.3	.21	.19	.66
17	1.7	1.3	.31	.17	30	8.3	32	4.3	1.2	.38	.14	.63
18	1.7	1.2	.31	.24	80	6.9	31	3.7	1.1	1.2	.12	.59
19	1.4	1.6	.32	.45	178	6.2	27	4.0	.99	1.1	.12	.47
20	1.3	2.2	.31	.74	112	7.8	28	3.5	1.1	.74	.06	.44
21	1.3	2.5	.37	1.0	43	5.2	20	3.0	1.2	.60	.04	.39
22	1.2	2.5	.40	.70	28	4.8	15	3.6	.98	.42	.04	.35
23	1.2	2.2	.37	.13	17	4.4	13	2.7	.65	.35	.02	.33
24	1.2	1.6	.34	.07	9.6	4.1	12	2.0	.55	.29	.00	.35
25	1.2	1.2	.27	.10	7.1	4.3	11	1.7	.50	.29	.00	.34
26	1.1	1.2	.31	.08	2.8	5.0	10	1.9	.45	.24	.01	.34
27	1.1	.94	.31	.06	1.2	11	9.0	1.7	.35	.24	.00	.32
28	1.1	.84	.31	.10	1.4	4.1	9.0	1.3	.29	.28	.00	.34
29	1.1	.80	.31	.20	---	5.6	8.5	1.0	.56	.28	.04	.35
30	1.0	.80	.31	.25	---	5.8	8.5	1.2	1.0	.26	.40	.61
31	1.0	---	.30	.22	---	88	---	1.0	---	.20	.28	---
TOTAL	57.92	39.62	15.72	8.43	528.56	380.7	781.0	434.0	27.22	12.40	2.40	18.03
MEAN	1.87	1.32	.51	.27	18.9	12.3	26.0	14.0	.91	.40	.077	.60
MAX	7.3	2.5	1.1	1.0	178	88	240	50	1.5	1.2	.40	3.6
MIN	.32	.80	.27	.06	.04	2.1	8.5	1.0	.29	.00	.00	.04
AC-FT	115	79	31	17	1050	755	1550	861	54	25	4.8	36

CAL YR 1982 TOTAL 2074.52 MEAN 5.68 MAX 330 MIN .00 AC-FT 4110
WTR YR 1983 TOTAL 2306.00 MEAN 6.32 MAX 240 MIN .00 AC-FT 4570

06479640 HIDEWOOD CREEK NEAR ESTELLINE, SD

LOCATION.--Lat 44°36'42", long 96°54'17", in SW¼NW¼ sec.12, T.113 N., R.51 W., Hamlin County, Hydrologic Unit 10170202, on left bank at upstream side of highway bridge, 2.7 mi north of Estelline, 2.8 mi southeast of Dempster, and 4.7 mi upstream from mouth.

DRAINAGE AREA.--164 mi², approximately.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,665 ft.

REMARKS.--Records good except those for winter period, Dec. 26 to Mar. 10, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--15 years, 22.6 ft³/s (16,370 acre-ft/yr); median of yearly mean discharges, 18 ft³/s (13,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,630 ft³/s Apr. 7, 1969 (gage height, 11.36 ft); maximum gage height, 11.55 ft Apr. 8, 1969 (backwater from collapsed bridge), no flow at times in 1969, 1971, 1974-77, 1981-83.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 759 ft³/s at 0700 hours, Apr. 1 (gage height, 6.91 ft), no other peak above base of 300 ft³/s; minimum daily discharge, 0 ft³/s Oct. 1 and Sept. 19, 20, 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.4	7.6	2.2	1.3	50	630	46	13	8.5	1.8	.16
2	.81	2.4	8.4	2.2	1.3	45	202	43	13	8.3	1.6	.09
3	2.0	2.4	8.6	2.1	1.2	33	101	41	12	8.0	1.3	.04
4	1.2	2.3	8.6	2.2	1.2	22	89	37	12	6.9	1.1	.16
5	.92	2.4	6.6	2.0	1.2	21	108	35	11	6.3	.99	.27
6	.66	2.2	8.1	1.8	1.2	20	109	36	11	5.7	1.1	.25
7	.77	2.6	6.9	1.8	1.2	22	97	61	9.8	4.9	1.3	.18
8	1.1	2.6	6.1	1.7	1.3	25	136	77	9.1	4.6	1.3	.08
9	5.5	2.8	6.1	1.7	1.5	40	118	50	9.0	4.0	1.1	.16
10	13	3.6	4.9	1.9	1.6	50	97	35	8.7	3.3	1.0	.41
11	9.7	4.4	5.1	1.6	2.0	47	84	45	8.7	3.0	.54	.36
12	9.5	4.8	4.4	1.5	3.0	42	88	50	9.3	2.8	.39	.28
13	8.9	4.8	3.9	1.4	6.0	65	113	45	11	2.7	.55	.22
14	7.1	4.3	3.8	1.3	10	67	143	40	13	2.2	.44	.10
15	4.5	4.3	3.4	1.3	9.0	53	59	35	13	2.0	.46	.24
16	4.6	4.4	3.6	1.2	8.0	51	89	31	11	3.6	.42	.37
17	5.8	4.7	3.3	1.1	8.0	40	109	29	11	4.1	.30	.23
18	4.7	4.9	3.4	1.2	7.5	38	112	29	11	4.1	.23	.08
19	4.5	6.2	3.6	1.5	7.5	35	115	28	10	4.1	.21	.00
20	4.0	9.5	3.1	1.8	7.0	37	169	27	9.4	3.6	.18	.00
21	3.5	11	3.1	1.9	8.0	33	166	26	9.1	3.3	.14	.02
22	3.4	13	2.9	1.5	10	33	140	25	9.4	3.5	.15	.09
23	3.2	12	3.1	1.2	12	30	114	22	8.9	3.4	.07	.16
24	3.3	10	3.1	1.1	15	29	93	21	8.6	2.9	.07	.10
25	3.4	8.5	2.7	1.2	18	29	76	20	8.2	2.6	.11	.11
26	3.6	7.9	2.5	1.0	25	31	66	18	8.0	2.3	.11	.05
27	2.9	7.4	2.5	1.1	40	35	59	18	7.7	2.0	.04	.00
28	2.9	6.7	2.1	1.3	59	25	54	17	7.2	2.0	.01	.00
29	3.0	6.8	1.8	1.5	---	30	50	16	8.4	2.7	.03	.01
30	2.9	6.9	2.4	1.4	---	31	48	15	8.3	2.4	.26	.11
31	2.8	---	2.2	1.3	---	119	---	14	---	2.0	.23	---
TOTAL	124.16	168.2	139.9	48.0	268.0	1228	3634	1032	299.8	121.8	17.53	4.33
MEAN	4.01	5.61	4.51	1.55	9.57	39.6	121	33.3	9.99	3.93	.57	.14
MAX	13	13	8.6	2.2	59	119	630	77	13	8.5	1.8	.41
MIN	.00	2.2	1.8	1.0	1.2	20	48	14	7.2	2.0	.01	.00
AC-FT	246	334	277	95	532	2440	7210	2050	595	242	35	8.6

CAL YR 1982 TOTAL 5288.06 MEAN 14.5 MAX 290 MIN .00 AC-FT 10490
WTR YR 1983 TOTAL 7085.72 MEAN 19.4 MAX 630 MIN .00 AC-FT 14050

06479980 MEDARY CREEK NEAR BROOKINGS, SD

LOCATION.--Lat 44°13'27", long 96°46'06", in NE¼NE¼NE¼ sec.25, T.109 N., R.50 W., Brookings County, Hydrologic Unit 10170202, on right bank 400 ft downstream from county highway bridge, 5.2 mi downstream from Deer Creek, 4.1 mi upstream from mouth, and 6.1 mi southeast of Brookings.

DRAINAGE AREA.--232 mi^2.

PERIOD OF RECORD.--October 1980 to current year.

REVISED RECORDS.--WRD SD-82-1: 1981.

GAGE.--Water-stage recorder. Datum of gage is 1,570.20 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for missing record period, Oct. 12 to Nov. 10, and for winter period, Dec. 7 to Mar. 1, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,210 ft^3/s Mar. 2, 1983 (gage height, 10.19 ft); no flow at times in 1981, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 11	1030	245	6.27	Apr. 2	0530	616	8.15
Nov. 22	0045	267	6.34	Apr. 22	1030	419	7.20
Feb. 22	--	215	ice jam	May 4	0545	224	6.02
Mar. 2	0445	*1210	*10.19	May 8	1045	614	8.14
Mar. 6	2200	1040	9.71	July 2	0945	384	7.09
Mar. 15	0045	291	6.48				

Minimum daily discharge, 3.6 ft^3/s Sept. 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	64	16	13	450	431	131	33	282	12	7.4
2	17	13	101	18	12	1140	578	136	32	377	11	6.0
3	19	13	112	19	12	715	365	169	32	339	10	5.4
4	21	13	123	19	12	468	262	212	31	276	9.3	5.0
5	23	12	112	17	12	493	237	150	30	186	9.2	4.8
6	27	12	90	18	13	827	233	131	29	122	8.5	5.1
7	29	12	60	18	13	991	238	171	28	83	7.9	4.9
8	30	13	45	19	13	475	230	533	26	60	7.2	4.7
9	90	20	35	21	13	326	233	365	25	46	6.9	4.0
10	136	40	25	22	12	296	233	210	24	37	6.6	3.8
11	226	66	20	19	12	231	206	148	22	31	6.3	3.7
12	190	63	18	16	12	230	189	122	21	26	6.2	3.6
13	62	95	20	17	12	259	206	113	22	23	6.1	3.6
14	46	112	22	18	12	276	163	119	31	21	5.8	3.8
15	35	101	24	17	12	280	149	117	49	19	5.4	4.6
16	32	93	20	17	13	222	231	102	80	28	5.4	5.4
17	29	92	19	16	14	184	315	90	90	28	5.1	5.8
18	26	91	20	15	15	164	347	82	85	41	5.2	6.2
19	22	153	20	17	20	156	313	79	65	46	5.1	6.3
20	21	224	20	19	40	140	313	78	70	42	4.4	6.5
21	21	244	21	20	90	131	382	78	83	35	4.2	6.8
22	21	259	23	19	215	120	399	74	95	29	4.1	6.8
23	30	209	24	16	210	119	325	66	120	24	3.9	6.7
24	38	158	23	16	200	112	267	58	114	21	3.9	6.9
25	42	119	20	17	190	112	219	52	77	19	3.9	7.0
26	38	83	19	15	180	113	183	46	54	17	3.9	7.4
27	31	69	19	11	170	92	160	42	43	16	4.0	7.3
28	26	64	18	12	180	90	146	39	44	16	3.7	7.5
29	20	59	18	13	---	107	132	36	74	15	3.7	7.7
30	17	58	15	15	---	120	129	35	150	14	5.0	8.5
31	15	---	14	14	---	205	---	34	---	13	7.7	---
TOTAL	1395	2574	1184	526	1722	9644	7814	3818	1679	2332	191.6	173.2
MEAN	45.0	85.8	38.2	17.0	61.5	311	260	123	56.0	75.2	6.18	5.77
MAX	226	259	123	22	215	1140	578	533	150	377	12	8.5
MIN	15	12	14	11	12	90	129	34	21	13	3.7	3.6
AC-FT	2770	5110	2350	1040	3420	19130	15500	7570	3330	4630	380	344

CAL YR 1982 TOTAL 11674.59 MEAN 32.0 MAX 259 MIN .00 AC-FT 23160
WTR YR 1983 TOTAL 33052.80 MEAN 90.6 MAX 1140 MIN 3.6 AC-FT 65560

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW¼NW¼ sec.8, T.108 N., R.49 W., Moody County, Hydrologic Unit 10170203, on right bank 3 ft downstream from highway bridge, 2.2 mi downstream from Medary Creek and 9.5 mi southeast of Brookings.

DRAINAGE AREA.--4,420 mi², approximately, of which about 1,970 mi² is probably noncontributing.

PERIOD OF RECORD.--August 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,551.91 ft National Geodetic Vertical Datum of 1929. Prior to May 30, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter periods, Dec. 9-12 and Dec. 25 to Feb. 23, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--30 years, 162 ft³/s (117,400 acre-ft/yr); median of yearly mean discharges, 110 ft³/s (79,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,900 ft³/s Apr. 9, 1969 (gage height, 14.77 ft); no flow at times in 1956, 1959, 1976, 1977, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 24	1530	1300	8.90	Apr. 3	2245	1510	8.77
Mar. 2	2230	2500	10.57	Apr. 22	1900	1500	8.72
Mar. 7	1830	*3300	*11.16	May 8	2215	1020	7.19

Minimum daily discharge, 12 ft³/s Sept. 28.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting control method used Feb. 24 to Mar. 10, Apr. 4 to May 17; stage-discharge relation affected by ice Dec. 9-12, Dec. 25 to Feb. 23)

1.7	7	4.0	289
2.0	35	6.0	697
2.5	86	8.0	1,210
3.0	145		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	127	196	70	35	1130	898	590	131	496	48	41
2	25	119	264	70	35	2060	1310	573	129	603	45	32
3	40	114	336	78	37	2160	1480	567	126	570	44	25
4	50	104	336	72	35	1640	1490	590	119	524	41	21
5	70	92	321	68	37	1500	1320	531	114	441	37	20
6	130	95	273	64	40	1810	1110	506	109	350	35	19
7	100	103	231	62	40	3110	1030	585	103	294	32	23
8	92	101	209	62	40	2500	995	862	98	238	30	19
9	162	98	200	68	42	1690	949	917	93	205	28	17
10	331	125	180	70	43	1430	915	735	88	177	26	17
11	440	181	160	66	45	1180	867	621	85	155	24	18
12	479	152	150	62	45	1100	819	533	83	132	23	18
13	414	150	145	58	46	1120	825	475	86	113	21	18
14	356	140	131	56	50	1120	778	438	104	97	20	18
15	306	130	124	54	48	1080	729	402	117	65	18	20
16	260	150	123	54	47	971	835	368	136	104	18	27
17	226	170	117	52	50	871	1070	334	151	117	18	26
18	203	200	110	50	62	785	1260	311	154	134	20	24
19	186	230	108	45	86	720	1330	292	139	139	19	21
20	175	290	104	48	110	638	1300	278	170	127	19	19
21	177	280	101	52	170	571	1360	266	189	114	16	18
22	186	260	96	46	320	531	1470	254	200	102	15	18
23	199	230	87	42	800	501	1460	233	215	90	14	16
24	203	220	84	39	1280	472	1310	219	210	82	15	16
25	199	240	80	37	1180	457	1120	200	173	75	14	15
26	190	220	70	34	1030	453	960	187	150	70	14	14
27	179	210	75	28	948	400	823	177	144	66	17	13
28	168	200	80	37	868	388	726	163	130	63	20	12
29	156	190	75	50	---	420	658	151	176	61	16	13
30	145	191	70	45	---	467	614	141	267	58	21	15
31	134	---	66	40	---	595	---	136	---	53	49	---
TOTAL	6001	5112	4702	1679	7571	33870	31811	12635	4189	5935	777	593
MEAN	194	170	152	54.2	270	1093	1060	408	140	191	25.1	19.8
MAX	479	290	336	78	1280	3110	1490	917	267	603	49	41
MIN	20	92	66	28	35	388	614	136	83	53	14	12
AC-FT	11900	10140	9330	3330	15020	67180	63100	25060	8310	11770	1540	1180

CAL YR 1982 TOTAL 47601.90 MEAN 130 MAX 640 MIN .00 AC-FT 94420
WTR YR 1983 TOTAL 114875.00 MEAN 315 MAX 3110 MIN 12 AC-FT 227900

06480400 SPRING CREEK NEAR FLANDREAU, SD

LOCATION.--Lat 44°07'18", long 96°35'19", in SE¼NE¼NE¼ sec.33, T.108 N., R.47 W., Moody County, Hydrologic Unit 10170203, on left bank at downstream side of bridge on State Highway 13, 5.0 mi north of Flandreau, and 6.6 mi upstream from mouth.

DRAINAGE AREA.--61.0 mi².

PERIOD OF RECORD.--Oct. 1, 1982, to Sept. 30, 1983.

GAGE.--Water-stage recorder. Altitude of gage is 1,580 ft, from topographic map.

REMARKS.--Records good except those for winter periods, Jan. 3 to Feb. 24 and Mar. 6-11, and those for no gage-height record, July 14 to Aug. 16, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	1700	*895	*15.16	June 21	0500	281	12.20
Apr. 1	0215	347	12.60	July 1	0530	562	13.76
May 7	1345	453	13.23				

Minimum daily discharge, 2.6 ft³/s Feb. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	7.4	17	3.9	2.8	643	252	24	7.8	458	4.9	9.0
2	4.5	7.3	45	5.6	2.7	315	111	52	7.8	300	4.7	7.1
3	7.0	6.9	52	10	2.6	153	73	75	7.6	124	4.5	6.1
4	6.6	6.3	32	12	2.8	130	64	40	7.5	64	4.7	5.9
5	6.0	5.7	22	10	2.7	170	61	28	6.7	41	4.4	6.1
6	10	5.7	15	11	2.9	80	61	38	6.6	30	4.3	6.4
7	16	6.1	12	12	3.1	31	66	310	6.2	22	4.3	6.3
8	30	6.4	8.5	13	3.4	21	64	124	6.0	16	4.5	5.7
9	60	7.1	6.5	13	3.3	16	64	52	5.8	14	4.2	5.3
10	170	31	6.2	14	3.6	21	56	32	5.7	12	4.1	5.2
11	70	74	5.6	8.2	3.8	26	47	23	5.2	11	4.0	5.9
12	45	87	4.6	3.9	4.2	31	44	20	5.2	11	3.9	6.2
13	35	125	4.7	4.3	4.7	56	40	22	7.6	10	4.1	6.2
14	25	138	4.8	4.9	5.3	65	26	22	21	9.4	4.5	6.2
15	18	76	4.8	6.0	7.0	56	47	18	32	8.8	4.3	7.0
16	15	52	4.7	5.6	10	32	99	17	30	8.4	4.1	7.4
17	12	37	4.7	5.0	16	25	152	16	26	7.6	4.1	7.2
18	10	31	5.0	4.3	24	25	106	15	17	9.2	4.2	6.7
19	10	95	5.3	5.2	35	24	106	15	15	11	4.6	6.1
20	12	190	5.3	6.6	56	18	109	15	153	12	4.2	6.0
21	15	105	5.3	7.4	74	19	95	15	208	10	4.1	6.0
22	25	61	5.6	5.8	130	17	72	13	97	8.4	4.1	6.0
23	32	38	6.0	5.0	180	14	54	12	48	7.2	4.2	5.9
24	30	22	8.1	5.4	280	12	41	11	27	6.2	4.3	5.9
25	23	15	23	4.4	241	13	33	10	17	6.6	4.1	5.9
26	16	12	33	3.7	248	11	27	9.7	15	6.0	4.4	5.7
27	12	9.2	12	3.0	321	3.3	23	9.2	14	5.4	4.8	5.5
28	10	9.3	7.0	3.3	453	10	21	8.5	28	5.2	6.8	5.3
29	9.0	9.4	4.3	3.7	---	19	21	8.1	154	5.4	10	5.3
30	8.2	10	3.9	3.3	---	25	22	7.8	296	5.4	16	11
31	7.7	---	3.8	3.1	---	139	---	7.8	---	5.2	14	---
TOTAL	753.0	1285.8	377.7	209.6	2122.9	2220.3	2057	1070.1	1283.7	1250.4	163.4	190.5
MEAN	24.3	42.9	12.2	6.76	75.8	71.6	68.6	34.5	42.8	40.3	5.27	6.35
MAX	170	190	52	14	453	643	252	310	296	458	16	11
MIN	3.0	5.7	3.8	3.0	2.6	3.3	21	7.8	5.2	5.2	3.9	5.2
AC-FT	1490	2550	749	416	4210	4400	4080	2120	2550	2480	324	378

WTR YR 1983 TOTAL 12984.4 MEAN 35.6 MAX 643 MIN 2.6 AC-FT 25750

06480650 FLANDREAU CREEK ABOVE FLANDREAU, SD

LOCATION.--Lat 44°03'45", long 96°29'15", in SE¼NE¼NE¼ sec.20, T.107 N., R.47 W., Moody County, Hydrologic Unit 10170203, on right bank 500 ft downstream from county highway bridge, 5.9 mi upstream from mouth and 5.2 mi east of Flandreau.

DRAINAGE AREA.--100 mi².

PERIOD OF RECORD.--Oct. 1, 1981, to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,555 ft, from topographic map.

REMARKS.--Records good except those for winter period, Dec. 7 to Feb. 28, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,500 ft³/s Mar. 1, 1983 (gage height, 9.92 ft); no flow at times in 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 9	2400	393	7.12	May 2	1830	489	7.33
Nov. 20	2315	238	6.33	May 7	1545	1410	9.54
Mar. 1	1630	*1500	*9.92	June 16	1100	154	5.75
Mar. 6	1900	942	8.45	June 21	0945	767	8.16
Apr. 1	0700	597	7.70	July 1	1900	1050	8.84
Apr. 17	1300	244	6.29				

Minimum daily discharge, 2.1 ft³/s Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	13	35	5.4	3.0	1160	456	56	17	895	8.5	7.4
2	8.0	12	73	5.4	2.7	833	238	270	17	744	7.9	6.3
3	10	12	110	5.0	2.7	304	133	288	17	326	7.0	5.7
4	9.0	11	82	5.0	2.7	258	120	120	14	157	7.0	5.2
5	6.0	10	60	4.7	2.7	326	121	78	16	93	6.5	4.8
6	12	10	44	5.0	2.9	703	118	111	16	68	6.1	4.6
7	20	10	30	4.8	3.0	561	121	1050	14	52	5.7	4.6
8	38	11	17	5.0	3.0	250	120	462	13	40	5.3	4.8
9	114	11	12	5.2	3.0	116	120	159	12	32	5.0	4.3
10	226	21	10	5.4	3.2	116	108	102	11	26	4.6	4.3
11	86	55	8.0	5.6	3.2	100	96	78	10	22	4.5	4.1
12	63	44	8.0	5.6	3.3	83	93	66	9.7	19	4.3	4.0
13	47	63	9.0	5.8	3.5	103	90	65	12	17	4.1	3.8
14	37	91	9.0	6.0	3.7	123	62	68	42	15	4.1	4.0
15	32	62	10	6.4	4.5	110	66	62	97	14	4.3	5.0
16	30	50	9.0	6.0	5.6	80	128	50	139	13	4.1	5.2
17	26	42	8.5	6.0	11	67	216	46	96	13	3.5	6.0
18	22	39	9.0	5.6	20	65	180	42	57	18	3.7	5.7
19	20	56	10	6.0	45	60	168	40	48	25	3.7	5.5
20	20	176	10	6.4	112	66	178	42	324	26	3.5	5.3
21	20	206	9.6	6.8	150	57	175	44	675	23	3.4	5.4
22	31	116	10	5.8	205	51	143	40	304	19	3.1	5.5
23	38	66	11	5.0	220	46	113	35	140	15	3.0	5.2
24	41	66	10	5.0	210	43	90	30	75	9.8	2.1	5.2
25	39	43	8.0	4.7	190	44	73	27	48	12	3.1	5.0
26	32	32	6.0	4.5	200	42	62	24	36	10	3.2	4.6
27	26	27	6.4	4.0	164	23	54	22	32	10	12	4.6
28	20	24	6.4	4.3	489	30	48	21	68	10	6.7	4.5
29	17	23	5.6	4.5	---	40	42	15	384	10	4.8	4.5
30	15	23	5.0	4.0	---	48	48	18	729	9.9	6.1	7.8
31	14	---	5.4	3.5	---	143	---	18	---	9.4	7.4	---
TOTAL	1125.5	1425	646.9	162.4	2068.7	6051	3780	3549	3472.7	2753.1	158.3	152.9
MEAN	36.3	47.5	20.9	5.24	73.9	195	126	114	116	88.8	5.11	5.10
MAX	226	206	110	6.8	489	1160	456	1050	729	895	12	7.8
MIN	4.5	10	5.0	3.5	2.7	23	42	15	9.7	9.4	2.1	3.8
AC-FT	2230	2830	1280	322	4100	12000	7500	7040	6890	5460	314	303

CAL YR 1982 TOTAL 11232.99 MEAN 30.8 MAX 578 MIN .00 AC-FT 22280
WTR YR 1983 TOTAL 25345.50 MEAN 69.4 MAX 1160 MIN 2.1 AC-FT 50270

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW¼NW¼ sec.29, T.104 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on left bank at downstream side of highway bridge, 0.2 mi downstream from confluence of divided channels and 3.0 mi southwest of Dell Rapids.

DRAINAGE AREA.--5,060 mi^2, approximately, of which about 1,970 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1948 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,455.99 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 11, 1949, nonrecording gage and Nov. 11, 1949, to Sept. 30, 1951, water-stage recorder, at present site at datum 0.04 ft lower.

REMARKS.--Records good except those for winter period, Nov. 26 to Mar. 4, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--35 years, 261 ft^3/s (189,100 acre-ft/yr); median of yearly mean discharges, 190 ft^3/s (138,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,300 ft^3/s Apr. 9, 1969 (gage height, 16.47 ft); no flow Aug. 25 to Oct. 17, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 23	0830	1460	7.37	May 2	2230	1680	7.93
Mar. 3	0825	*5410	a*13.11	May 8	2330	2610	9.83
Mar. 7	1945	5010	12.42	June 22	0830	1280	6.94
Apr. 2	--	2610	9.84	July 2	2000	3620	11.29
Apr. 20	1630	2570	9.76				

a Backwater from ice.
Minimum daily discharge, 54 ft^3/s Sept. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	240	490	135	75	3100	2450	1060	264	1910	142	81
2	85	232	535	135	75	4400	2500	1520	255	3260	137	60
3	98	215	616	130	75	5210	2300	1580	247	3270	131	89
4	105	200	654	120	70	4180	2020	1440	239	2020	123	80
5	132	192	640	110	70	3870	2070	1170	230	1280	118	70
6	255	168	600	110	65	4260	2080	1090	220	1010	112	70
7	160	185	500	110	65	4930	1900	2090	215	814	106	68
8	162	175	380	110	65	4740	1780	2470	204	666	100	66
9	476	165	330	105	65	4050	1670	2200	198	566	94	62
10	552	252	290	100	65	3010	1600	1560	190	491	88	57
11	898	342	270	100	60	2510	1500	1330	177	419	83	57
12	678	500	250	100	60	2250	1490	1130	173	371	80	55
13	626	600	230	100	60	2030	1400	1010	182	332	74	54
14	566	600	210	100	60	1850	1290	890	246	297	72	54
15	518	550	190	95	60	1820	1290	810	281	269	70	57
16	444	700	180	90	60	1750	1650	747	299	247	66	59
17	395	530	180	85	80	1620	1900	686	335	260	68	63
18	342	500	180	85	90	1490	2270	635	373	277	68	62
19	328	468	175	85	250	1370	2350	601	350	290	66	63
20	316	760	175	85	600	1260	2510	574	363	298	62	63
21	308	1240	175	85	950	1140	2450	547	880	292	62	66
22	316	1320	180	85	1200	1040	2180	513	1240	261	60	63
23	328	1330	170	85	1600	969	2070	486	907	240	60	66
24	371	1150	165	84	1800	893	2040	451	613	224	60	65
25	389	1030	160	83	2000	863	1930	411	480	205	60	63
26	380	1010	155	83	1900	833	1750	389	396	187	57	63
27	345	950	150	83	2000	759	1520	361	366	188	57	65
28	320	800	150	80	2820	708	1330	334	400	175	57	65
29	297	620	145	80	---	734	1180	307	764	166	57	62
30	270	530	145	80	---	794	1090	287	1410	160	111	66
31	255	---	140	75	---	1300	---	277	---	150	89	---
TOTAL	10792	17614	8810	2993	16340	69733	55560	28956	12497	20595	2590	1934
MEAN	348	587	284	96.5	584	2249	1852	934	417	664	83.5	64.5
MAX	898	1330	654	135	2820	5210	2510	2470	1410	3270	142	89
MIN	77	175	140	75	60	708	1090	277	173	150	57	54
AC-FT	21410	34940	17470	5940	32410	138300	110200	57430	24790	40850	5140	3840

CAL YR 1982 TOTAL 94407.4 MEAN 259 MAX 2580 MIN 1.0 AC-FT 187300
WTR YR 1983 TOTAL 248414.0 MEAN 681 MAX 5210 MIN 54 AC-FT 492700

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-62, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1970, October 1973 to current year.
WATER TEMPERATURES: October 1967 to September 1971, October 1974 to September 1975, October 1979 to current year.
SUSPENDED SEDIMENT DISCHARGE: October 1967 to September 1976.

REMARKS.--There are many days of no samples during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,100 micromhos Jan. 27, 1977; minimum daily, 140 micromhos Apr. 9, 1969.
WATER TEMPERATURES: Maximum daily, 33.5°C July 7, 12, 16, 20, 1974; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 619 mg/L Apr. 19, 1974; minimum daily mean, 0 mg/L Aug. 25 to Sept. 30, 1976.
SEDIMENT LOADS: Maximum daily, 40,600 tons Apr. 9, 1969; minimum daily, 0 ton Aug. 8, 9, 14, Aug. 24 to Sept. 30, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 1,080 micromhos Feb. 10; minimum observed daily, 330 micromhos Feb. 19.
WATER TEMPERATURES: Maximum observed daily, 32.0°C Aug. 4; minimum observed daily, 0.0°C on several days during winter.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT									
07...	1100	152	690	7.1	11.0	320	130	73	34
NOV									
19...	1400	473	1060	--	2.0	440	160	100	47
JAN									
25...	1600	83	1320	7.8	.0	580	260	140	56
FEB									
22...	1530	--	430	7.7	1.0	190	61	47	16
MAR									
03...	1005	5410	340	--	1.0	--	--	--	--
04...	1020	4530	390	--	2.0	--	--	--	--
08...	1245	4640	520	--	.0	--	--	--	--
15...	1515	1650	790	--	1.5	--	--	--	--
25...	1230	903	980	7.5	4.0	460	190	110	46
APR									
18...	1630	2240	950	--	5.0	--	--	--	--
26...	1500	1620	840	8.1	14.5	440	230	100	47
MAY									
05...	1230	1180	890	7.3	13.5	440	190	100	47
JUN									
06...	1300	228	860	7.8	16.5	430	200	89	50
JUL									
22...	1145	250	850	7.9	28.0	430	200	96	47
AUG									
15...	1255	70	750	7.8	27.0	330	210	50	50
SEP									
14...	0920	53	700	--	15.0	--	--	--	--
19...	1235	64	730	8.2	15.0	340	170	66	43

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT									
07...	27	15	.7	7.5	195	150	32	.30	7.9
NOV									
19...	26	11	.6	5.6	287	210	21	.30	19
JAN									
25...	34	11	.6	5.8	318	260	30	.30	25
FEB									
22...	9.0	9	.3	13	131	77	11	.20	11
MAR									
03...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
25...	22	9	.5	6.3	277	200	15	.30	18
APR									
18...	--	--	--	--	--	--	--	--	--
26...	22	10	.5	6.6	218	250	13	.20	3.9
MAY									
05...	22	10	.5	6.1	252	210	18	.20	7.0
JUN									
06...	28	12	.6	5.3	226	240	24	.30	6.7
JUL									
22...	24	11	.5	7.4	231	240	18	.30	7.1
AUG									
15...	28	15	.7	7.1	125	240	23	.30	.2
SEP									
14...	--	--	--	--	--	--	--	--	--
19...	26	14	.6	6.0	173	200	26	.30	4.2

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)
OCT								
07...	450	.61	184	.300	.300	.090	.080	.25
NOV								
19...	610	.82	773	1.40	.490	.400	.420	1.3
JAN								
25...	740	1.0	166	3.20	.190	.160	.120	.37
FEB								
22...	270	.36	--	1.30	.710	.540	.460	1.4
MAR								
03...	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
25...	580	.79	1620	.950	.220	.140	.080	.25
APR								
18...	--	--	--	--	--	--	--	--
26...	570	.78	2510	.150	.120	.050	.020	.06
MAY								
05...	560	.76	1790	.800	.160	.070	.060	.18
JUN								
06...	580	.79	356	<.100	.070	.030	.020	.06
JUL								
22...	580	.79	390	.240	.270	.030	.030	.09
AUG								
15...	470	.64	90	<.100	.210	.030	.030	.09
SEP								
14...	--	--	--	--	--	--	--	--
19...	480	.65	82	.300	.150	.030	.030	.09

< Less than.

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	800	960	1010	---	---	400	800	---	---	650	820	670
2	820	950	950	---	---	370	660	840	790	540	---	670
3	800	980	940	970	---	350	---	870	850	450	800	640
4	800	---	910	1000	---	420	750	900	850	620	780	---
5	740	1000	---	1010	---	490	740	820	---	650	---	---
6	780	940	---	1000	---	550	740	860	840	790	820	---
7	730	940	---	---	---	540	---	600	850	---	820	710
8	600	930	---	1020	---	520	610	---	830	870	800	710
9	600	960	---	---	---	570	840	600	830	920	800	---
10	670	950	---	---	1080	650	---	---	820	940	780	730
11	630	960	---	---	960	680	860	840	810	930	---	760
12	560	---	---	---	---	710	850	870	830	930	770	770
13	600	950	---	1010	---	770	---	940	850	---	760	---
14	660	---	---	---	1000	780	840	950	---	880	---	720
15	740	930	---	---	---	780	840	920	---	---	---	720
16	750	900	---	---	550	790	890	---	870	890	740	720
17	790	910	---	960	710	---	---	950	---	890	740	750
18	840	960	---	---	450	800	850	950	890	870	---	730
19	850	960	---	---	330	---	820	970	870	870	710	760
20	860	930	---	---	---	840	830	900	870	870	700	750
21	890	---	1020	1020	---	860	840	---	860	870	680	750
22	890	---	---	---	---	880	850	910	610	890	680	760
23	900	---	---	---	390	790	870	---	620	860	680	790
24	920	870	---	---	370	900	860	920	700	920	680	810
25	930	---	---	---	370	920	870	910	770	920	680	---
26	930	960	---	---	390	---	880	930	830	950	690	830
27	960	960	---	---	450	---	890	930	860	920	670	830
28	---	---	---	---	---	930	900	920	850	950	670	820
29	950	1010	---	---	---	940	910	---	800	930	---	800
30	---	1010	---	---	---	870	910	960	830	910	630	800
31	960	---	---	1010	---	920	---	960	---	880	640	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10.0	3.0	---	---	3.0	6.0	---	---	23.0	29.0	29.0
2	12.0	9.0	5.0	---	---	3.0	5.0	---	16.0	23.0	---	30.0
3	14.0	6.0	2.0	.0	---	4.0	---	12.0	20.0	24.0	27.0	27.0
4	17.0	---	2.0	.0	---	4.0	5.0	13.0	20.0	24.0	32.0	---
5	17.0	3.0	---	.0	---	6.0	5.0	18.0	---	24.0	---	---
6	14.0	5.0	---	.0	---	5.0	6.0	14.0	21.0	22.0	27.0	---
7	14.0	7.0	---	---	---	4.0	---	13.0	21.0	---	27.0	23.0
8	12.0	5.0	---	1.0	---	1.0	7.0	---	22.0	25.0	26.0	25.0
9	12.0	6.0	---	---	---	1.0	7.0	14.0	22.0	27.0	27.0	---
10	12.0	5.0	---	---	.0	1.0	---	---	22.0	27.0	29.0	23.0
11	12.0	4.0	---	---	---	1.0	9.0	17.0	21.0	26.0	---	22.0
12	11.0	---	---	---	---	4.0	6.0	17.0	21.0	27.0	26.0	19.0
13	10.0	1.0	---	2.0	.0	---	---	---	20.0	---	29.0	---
14	11.0	---	---	---	1.0	4.0	5.0	14.0	---	28.0	---	18.0
15	12.0	1.0	---	---	---	4.0	5.0	15.0	---	---	---	18.0
16	10.0	1.0	---	---	1.0	4.0	5.0	---	21.0	28.0	27.0	19.0
17	12.0	2.0	---	.0	1.0	---	---	13.0	---	27.0	23.0	15.0
18	13.0	2.0	---	---	1.0	---	7.0	13.0	23.0	28.0	---	20.0
19	10.0	3.0	---	---	1.0	---	6.0	14.0	20.0	30.0	30.0	15.0
20	8.0	3.0	---	---	---	---	8.0	14.0	20.0	30.0	30.0	12.0
21	7.0	---	3.0	.0	---	---	10.0	---	24.0	28.0	27.0	12.0
22	9.0	---	2.0	---	---	---	11.0	16.0	27.0	31.0	30.0	13.0
23	7.0	---	1.0	---	1.0	---	12.0	---	27.0	---	26.0	12.0
24	7.0	2.0	---	---	1.0	---	13.0	18.0	28.0	27.0	24.0	15.0
25	12.0	---	---	---	1.0	5.0	15.0	19.0	---	28.0	28.0	---
26	9.0	.0	---	---	1.0	---	15.0	20.0	---	25.0	26.0	19.0
27	10.0	1.0	---	.0	2.0	---	14.0	21.0	---	27.0	30.0	20.0
28	---	---	---	---	---	5.0	14.0	22.0	---	26.0	26.0	21.0
29	11.0	2.0	---	---	---	5.0	---	---	---	25.0	---	19.0
30	---	2.0	---	---	---	5.0	---	14.0	---	28.0	26.0	19.0
31	10.0	---	---	.0	---	6.0	---	18.0	---	28.0	28.0	---

06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43°32'01", long 96°47'26", in NW¼SW¼ sec.24, T.101 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 5 ft downstream from bridge on Marion Road, 1.3 mi upstream from mouth, 1.8 mi downstream from small right-bank tributary, and 4.0 mi southwest of Sioux Falls.

DRAINAGE AREA.--570 mi^2, approximately.

PERIOD OF RECORD.--May 1948 to September 1971 (published as "near Sioux Falls"). October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,405.10 ft National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 24, 1949, nonrecording gage, and Oct. 24, 1949, to Apr. 28, 1972, water-stage recorder, both at site 1.9 mi upstream at datum 10.19 ft higher.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--35 years, 51.9 ft^3/s (37,600 acre-ft/yr); median of yearly mean discharges, 25 ft^3/s (18,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft^3/s June 17, 1957 (gage height, 17.78 ft), site and datum then in use, from rating curve extended above 8,100 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 9	0445	1000	6.28	Apr. 13	2130	1420	7.20
Nov. 12	0345	1220	6.72	Apr. 16	0100	1490	7.32
Nov. 14	1230	639	5.22	May 2	1745	2270	8.65
Nov. 20	2045	1090	6.46	May 7	0730	1200	6.65
Feb. 23	--	1200	ice jam	June 20	2015	1720	7.65
Mar. 7	0045	*3580	*10.62	June 29	1045	748	5.45
Apr. 1	0245	2110	8.49				

Minimum daily discharge, 7.7 ft^3/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	110	242	56	34	1250	1760	500	127	414	57	20
2	45	107	375	56	33	1390	1100	1920	121	346	46	17
3	59	102	444	55	33	1320	852	1540	114	316	50	16
4	68	91	342	56	33	1370	768	925	109	284	45	16
5	60	86	265	56	33	1560	719	734	99	261	45	15
6	183	86	202	54	33	2270	760	748	94	223	44	17
7	235	92	183	52	33	2860	817	1110	87	186	42	16
8	275	88	141	48	33	1620	720	806	84	161	41	16
9	672	92	110	50	33	1190	629	597	80	143	39	15
10	621	213	105	50	32	1180	562	500	78	137	36	15
11	621	534	100	48	31	1100	504	448	74	126	33	13
12	427	712	90	50	29	980	675	442	71	114	31	12
13	310	483	83	50	31	926	1290	459	84	109	30	14
14	244	586	78	50	30	768	1080	420	137	103	26	12
15	196	438	73	45	30	632	1140	405	145	96	25	13
16	164	312	69	45	29	540	1350	367	127	88	25	14
17	150	245	68	45	35	540	1220	348	119	94	26	12
18	144	225	66	45	49	519	1190	326	214	123	23	12
19	158	555	68	45	115	466	1220	331	229	115	21	12
20	178	1050	72	45	800	399	1130	324	1080	106	19	15
21	218	723	75	45	750	339	1010	305	971	91	18	11
22	281	531	78	45	760	330	897	288	475	85	18	11
23	304	294	80	44	1110	327	823	253	308	76	17	11
24	267	280	80	43	1050	309	737	219	221	70	20	9.3
25	218	327	75	38	1000	309	655	204	172	66	26	10
26	182	258	64	37	900	266	582	191	135	63	20	10
27	155	238	56	37	800	198	527	183	153	61	21	8.9
28	139	221	55	38	1100	208	489	166	339	65	26	8.5
29	129	207	57	37	---	352	470	154	702	67	21	7.7
30	120	209	60	36	---	423	468	143	542	68	27	8.5
31	115	---	59	35	---	1010	---	136	---	63	24	---
TOTAL	6984	9495	3915	1436	8979	26951	26144	15492	7291	4320	942	387.9
MEAN	225	317	126	46.3	321	869	871	500	243	139	30.4	12.9
MAX	672	1050	444	56	1110	2860	1760	1920	1080	414	57	20
MIN	45	86	55	35	29	198	468	136	71	61	17	7.7
AC-FT	13850	18830	7770	2850	17810	53460	51860	30730	14460	8570	1870	769

CAL YR 1982 TOTAL 35160.38 MEAN 96.3 MAX 1550 MIN .23 AC-FT 69740
WTR YR 1983 TOTAL 112336.90 MEAN 308 MAX 2860 MIN 7.7 AC-FT 222800

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW¼NW¼ sec.10, T.101 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 20 ft downstream from bridge on North Cliff Avenue and 4.1 mi upstream from Slip Up Creek.

DRAINAGE AREA.--5,770 mi^2, approximately, of which about 1,970 mi^2 is probably noncontributing.

PERIOD OF RECORD.--March 1962 to September 1971 (gage heights and discharge measurements only in files of Corps of Engineers). October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,294.18 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Dec. 15, 1971, nonrecording gage 20 ft upstream at same datum.

REMARKS.--Records good. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--12 years, 342 ft^3/s (247,800 acre-ft/yr); median of yearly mean discharges, 240 ft^3/s (174,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft^3/s Mar. 7, 1983 (gage height, 19.58 ft); minimum daily discharge, 0.81 ft^3/s Feb. 13, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 10, 1969, reached a stage of 27.45 ft, discharge, 40,700 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 10	0830	2680	12.14	Apr. 13	2400	3280	13.23
Nov. 12	0845	1960	10.40	Apr. 19	0945	3880	14.23
Nov. 20	1345	2230	11.07	May 3	0200	3940	14.33
Dec. 3	1315	1290	8.59	May 8	0645	3480	13.56
Feb. 24	1600	2920	12.56	June 21	0130	2270	11.17
Mar. 7	1200	*9000	*19.65	July 3	1615	3590	13.75
Apr. 1	2345	4100	14.60				

Minimum daily discharge, 69 ft^3/s Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	407	883	203	144	4530	3760	1550	477	2150	235	113
2	151	382	1080	200	144	4770	3940	2680	491	2640	211	97
3	134	355	1260	198	129	5450	3460	3580	428	3460	221	92
4	141	359	1230	198	127	6340	2990	2600	404	3080	224	105
5	151	327	1160	198	128	6060	2920	2200	376	2000	190	127
6	533	314	1030	200	124	6280	2960	2100	355	1520	180	115
7	424	305	872	195	123	8440	3020	2840	336	1270	178	92
8	636	299	522	193	122	6300	2790	3380	321	1080	163	85
9	2000	355	339	195	118	5200	2520	3180	308	925	144	82
10	2550	690	338	193	118	4700	2380	2440	293	809	136	86
11	1970	1060	338	190	118	4080	2260	2120	281	708	125	78
12	1650	1740	337	189	119	3650	2390	1880	272	617	118	75
13	1270	1040	336	187	124	3460	3100	1760	442	547	114	71
14	1110	1020	335	188	127	3030	2700	1600	502	508	105	70
15	981	886	334	178	128	2780	2510	1480	494	432	114	76
16	799	918	333	175	141	2620	2880	1330	505	404	109	76
17	732	950	333	176	149	2470	3010	1250	634	474	104	78
18	662	1180	327	168	164	2310	3390	1180	743	547	104	79
19	596	1250	311	165	226	2160	3830	1140	733	463	97	76
20	666	2070	305	164	916	1970	3780	1090	1890	446	90	80
21	659	2060	302	163	1510	1810	3740	1040	2000	438	89	78
22	712	1900	302	163	1640	1680	3410	1010	1760	404	85	81
23	722	1800	302	160	2290	1580	3100	925	1560	362	84	77
24	778	1600	295	160	2790	1500	2900	858	1160	346	85	78
25	746	1500	290	156	2360	1450	2730	799	883	321	95	77
26	701	1300	243	155	2100	1420	2500	708	725	281	85	75
27	638	1200	245	151	2380	1260	2240	670	725	287	86	72
28	578	1100	200	153	3790	1180	2020	606	949	272	84	69
29	512	1000	175	152	---	1300	1770	564	1450	260	140	74
30	477	900	203	148	---	1410	1540	536	1850	249	181	85
31	438	---	208	147	---	1980	---	505	---	232	122	---
TOTAL	24237	30267	14768	5461	22349	103170	86540	49601	23347	27532	4098	2519
MEAN	782	1009	476	176	798	3328	2885	1600	778	888	132	84.0
MAX	2550	2070	1260	203	3790	8440	3940	3580	2000	3460	235	127
MIN	120	299	175	147	118	1180	1540	505	272	232	84	69
AC-FT	48070	60030	29290	10830	44330	204600	171700	98380	46310	54610	8130	5000

CAL YR 1982 TOTAL 153227.01 MEAN 420 MAX 2610 MIN .81 AC-FT 303900
WTR YR 1983 TOTAL 393889.00 MEAN 1079 MAX 8440 MIN 69 AC-FT 781300

BIG SIOUX RIVER BASIN

06482610 SPLIT ROCK CREEK AT CORSON, SD

LOCATION.--Lat 43°36'59", long 96°33'54", in NE¼NW¼ sec.26, T.102 N., R.48 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 6 ft downstream from highway bridge, 0.3 mi east of Corson and 3.4 mi upstream from mouth.

DRAINAGE AREA.--475 mi^2, approximately.

PERIOD OF RECORD.--October 1965 to current year. February 1951 to September 1965 (gage heights and discharge measurements only in files of Corps of Engineers).

GAGE.--Water-stage recorder. Datum of gage is 1,304.22 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 15, 1964, nonrecording gage at datum 0.15 ft higher and Aug. 15, 1964, to Sept. 3, 1970, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, Dec. 24 to Mar. 12, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--18 years, 78.4 ft^3/s (56,800 acre-ft/yr); median of yearly mean discharges, 52 ft^3/s (37,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft^3/s Apr. 8, 1969 (gage height, 15.00 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1951, 15.41 ft June 17, 1957, discharge, 19,300 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 9	2015	1340	6.09	Apr. 17	0515	1290	6.11
Nov. 12	0300	746	4.92	May 2	1130	1150	5.95
Nov. 15	1030	1010	5.50	May 8	0500	2660	7.89
Nov. 20	1345	930	5.35	June 20	0600	1850	6.79
Nov. 24	0730	1290	6.01	June 24	0300	698	4.84
Mar. 7	--	*4500	*9.96	July 3	0400	3730	8.68
Apr. 1	2115	1890	6.90				

Minimum daily discharge, 20 ft^3/s Sept. 25, 26, 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	90	152	34	28	1500	1530	201	79	1160	52	37
2	37	85	190	36	28	2300	1630	959	78	1990	48	33
3	41	78	230	38	28	2400	1210	874	77	3150	43	31
4	40	71	209	38	28	1460	896	853	76	1670	40	31
5	36	62	185	40	28	1310	761	551	69	961	38	31
6	155	62	163	40	29	2710	683	409	65	595	34	31
7	142	64	137	39	30	3300	728	1380	60	401	35	28
8	141	67	115	39	30	1300	739	2220	59	283	35	26
9	954	69	105	39	32	1500	662	1380	55	215	34	25
10	752	229	95	37	34	1600	634	665	58	174	32	24
11	412	414	90	35	36	1000	546	396	57	142	29	26
12	307	506	86	35	37	700	567	303	56	118	29	25
13	250	396	74	35	37	527	731	275	70	103	27	24
14	215	672	63	33	37	499	555	222	232	94	25	23
15	170	745	57	31	38	490	476	199	285	85	26	24
16	134	434	54	31	38	435	935	182	249	77	28	23
17	117	257	51	30	45	385	1250	167	245	77	28	25
18	101	210	51	29	50	349	1160	157	319	112	28	25
19	100	406	52	29	60	318	1080	157	340	128	25	23
20	113	906	51	30	200	276	1110	155	977	114	25	23
21	143	676	50	31	500	249	959	142	730	110	25	23
22	225	501	50	31	1200	233	750	131	405	100	24	22
23	260	592	50	30	1100	222	579	119	472	90	22	22
24	241	1040	48	30	950	213	444	113	641	80	22	21
25	202	767	45	30	900	205	350	105	434	73	25	20
26	174	497	40	28	900	198	283	95	288	66	26	20
27	147	423	35	28	950	150	230	92	208	64	26	21
28	127	331	30	30	1000	130	201	85	228	67	25	20
29	113	287	30	30	---	169	188	80	796	67	31	20
30	102	235	30	29	---	190	184	80	1310	64	40	23
31	96	---	32	29	---	321	---	80	---	59	40	---
TOTAL	6073	11172	2650	1024	8373	26639	22051	12827	9018	12489	967	750
MEAN	196	372	85.5	33.0	299	859	735	414	301	403	31.2	25.0
MAX	954	1040	230	40	1200	3300	1630	2220	1310	3150	52	37
MIN	26	62	30	28	28	130	184	80	55	59	22	20
AC-FT	12050	22160	5260	2030	16610	52840	43740	25440	17890	24770	1920	1490

CAL YR 1982 TOTAL 48615.45 MEAN 133 MAX 1100 MIN .00 AC-FT 96030
WTR YR 1983 TOTAL 114033.00 MEAN 312 MAX 3300 MIN 20 AC-FT 226200

06482848 BEAVER CREEK AT CANTON, SD

LOCATION.--Lat 43°17'12", long 96°35'46", in SW¼SW¼SE¼ sec.23, T.98 N., R.49 W., Lincoln County, Hydrologic Unit 10170203, on left bank about 1,000 ft downstream from county highway bridge, 1.0 mi southwest of Canton and 2.2 mi upstream from mouth.

DRAINAGE AREA.--129 mi².

PERIOD OF RECORD.--Oct. 1, 1982, to Sept. 30, 1983.

GAGE.--Water-stage recorder. Altitude of gage is 1,225 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 11 to Feb. 22, and periods of no gage-height record, Oct. 1-27 and May 11 to June 5, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 8	--	1250	ice jam	May 7	1245	379	7.08
Mar. 31	--	1470	11.52	June 20	0815	*2530	*14.61
Apr. 12	2245	958	9.72	June 28	2345	1050	10.18
Apr. 15	2400	641	8.41				

Minimum daily discharge, 3.4 ft³/s Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	27	33	10	6.0	782	902	100	10	251	19	4.2
2	30	26	39	10	6.0	645	652	150	10	194	14	4.0
3	40	24	41	10	5.5	502	355	200	10	143	12	3.7
4	50	22	42	10	5.5	422	206	250	10	108	10	3.4
5	40	21	38	10	5.5	598	149	168	10	78	9.1	3.6
6	60	20	31	10	5.5	638	146	167	9.4	61	8.5	4.3
7	70	20	26	10	5.5	800	150	295	9.4	47	7.9	4.3
8	75	19	24	10	5.0	1100	136	269	9.2	37	7.1	4.2
9	100	21	20	10	5.0	750	112	167	9.0	31	6.7	4.0
10	85	131	20	10	5.0	600	112	141	8.5	28	6.2	4.0
11	70	150	17	9.0	5.0	500	111	120	8.3	24	5.9	4.0
12	60	170	14	9.0	5.0	400	385	100	8.8	21	5.9	4.0
13	50	160	12	9.0	5.0	300	893	90	13	18	5.9	4.0
14	40	180	12	9.0	6.0	400	569	80	57	16	5.7	4.0
15	40	180	11	8.0	7.0	550	459	70	28	15	5.6	7.0
16	35	140	11	8.0	8.0	330	539	60	22	14	5.5	6.5
17	35	90	10	7.5	10	108	433	50	36	28	5.4	6.5
18	30	88	10	7.0	11	117	368	50	105	59	5.5	6.5
19	150	148	10	7.0	20	118	305	40	71	60	5.3	6.6
20	100	213	10	7.0	60	98	243	40	1400	30	5.0	6.5
21	90	205	10	7.0	55	87	173	30	1020	21	4.7	6.5
22	70	170	11	6.5	80	77	130	30	700	18	4.6	6.5
23	60	107	12	6.5	150	68	100	20	586	16	4.6	6.5
24	50	117	13	6.5	220	64	90	20	355	16	4.9	7.0
25	45	77	15	6.5	200	82	80	20	215	15	9.9	7.0
26	40	43	13	6.3	400	100	70	20	140	13	6.6	7.5
27	40	49	13	6.3	600	100	65	20	290	13	4.9	7.5
28	39	39	12	6.0	557	200	65	15	868	35	4.6	7.0
29	36	36	11	6.0	---	300	60	15	743	45	4.5	8.0
30	32	36	11	6.0	---	500	60	15	347	57	4.6	8.0
31	29	---	10	6.0	---	1400	---	15	---	40	4.6	---
TOTAL	1711	2749	562	250.1	2453.5	12736	8118	2827	7113.6	1552	214.7	166.8
MEAN	55.2	91.6	18.1	8.07	87.6	411	271	91.2	237	50.1	6.93	5.56
MAX	150	213	42	10	600	1400	902	295	1400	251	19	8.0
MIN	20	19	10	6.0	5.0	64	60	15	8.3	13	4.5	3.4
AC-FT	3390	5450	1110	496	4870	25260	16100	5610	14110	3080	426	331

WTR YR 1983 TOTAL 40453.7 MEAN 111 MAX 1400 MIN 3.4 AC-FT 80240

06485500 BIG SIOUX RIVER AT AKRON, IA

LOCATION.--Lat 42°49'42", long 96°33'45", in NW¼SW¼ sec.31, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank at west edge of Akron, 0.6 mi downstream from bridge on State Highway 48, and 2.3 mi upstream from Union Creek.

DRAINAGE AREA.--9,030 mi², approximately, of which about 1,970 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M), 1931-33(M), 1936(M), 1938(M), 1940(M). WSP 1389: Drainage area.

GAGE.--Water-stage recorder with data-collection platform attachment. Datum of gage is 1,118.90 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 3, 1934, nonrecording gage at bridge 300 ft upstream at same datum.

REMARKS.--Records good except those for winter period, Dec. 11 to Feb. 27, which are poor.

AVERAGE DISCHARGE.--55 years, 901 ft³/s (652,800 acre-ft/yr); median of yearly mean discharges, 730 ft³/s (529,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,800 ft³/s Apr. 9, 1969 (gage height, 22.99 ft); minimum daily, 4.0 ft³/s Jan. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 12	1730	4680	12.70	Apr. 15	1345	15500	19.01
Oct. 25	1015	3530	10.86	May 5	1530	9310	16.65
Nov. 14	1315	5390	13.64	May 11	0115	8860	16.45
Nov. 23	0515	5080	13.19	June 22	0300	*34500	*21.49
Mar. 9	1300	21000	20.83	June 28	0515	16300	19.28
Apr. 4	1330	12500	17.92				

Minimum daily discharge, 503 ft³/s Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	510	1990	2290	1000	560	10500	5410	4340	2000	11200	1810	896
2	578	1890	2280	1000	560	13300	8310	4840	1950	11700	1700	824
3	788	1800	2350	1000	560	14400	10800	6070	1920	11500	1620	750
4	1090	1720	2500	1100	560	14000	12300	7980	1900	10500	1560	714
5	1200	1630	2690	1100	550	14300	11600	9130	1800	11100	1440	696
6	1170	1560	2670	1100	540	14900	9950	8300	1740	11200	1360	738
7	1080	1500	2540	1100	540	16600	8960	6430	1680	8660	1290	741
8	1340	1450	2310	1100	530	19400	8740	6010	1620	5920	1230	726
9	1840	1430	2140	1100	520	20800	8730	6930	1570	4860	1170	677
10	2830	1490	2120	1100	520	17500	8540	8340	1510	4240	1110	631
11	4110	2250	1900	1000	510	12200	8250	8460	1440	3790	1050	598
12	4620	3690	1700	970	510	9730	7940	6530	1390	3440	1000	576
13	4200	4690	1700	950	510	8770	8970	5080	1670	3160	961	567
14	3340	5270	1900	900	510	7990	12500	4580	3320	2930	928	558
15	2840	4570	2000	850	520	7690	15300	4220	4540	2720	901	574
16	2510	3760	2300	820	550	7290	14000	3910	5110	2560	865	586
17	2230	3410	2200	800	580	6690	11300	3580	5150	2450	832	574
18	2000	3140	2100	770	650	6060	10300	3480	4780	2690	806	567
19	1930	3030	2100	740	720	5610	10200	3490	4600	2920	774	552
20	1980	3160	2000	720	850	5300	10200	3500	8490	2840	746	539
21	2060	3850	1900	700	1000	4950	9650	3390	20000	2630	728	525
22	2370	4740	1900	700	1300	4570	9110	3240	27700	2460	705	519
23	2800	4980	1900	660	2000	4220	8760	3050	18000	2620	684	520
24	3290	4160	1900	650	3500	3960	8100	2870	12700	2600	677	516
25	3510	3370	1900	630	5000	3820	7130	2700	8160	2340	697	518
26	3360	2930	1900	620	7000	3800	6360	2580	5690	2160	837	514
27	3020	2760	1500	600	9000	3560	5710	2440	7600	2050	801	509
28	2720	2500	1200	580	10600	3120	5250	2310	15600	1990	761	503
29	2470	2390	1100	570	---	2920	4830	2210	14400	2510	721	529
30	2280	2320	1000	570	---	3110	4490	2110	12200	2130	705	574
31	2120	---	1000	560	---	3780	---	2040	---	1920	791	---
TOTAL	72186	87430	60990	26060	50750	274840	271690	144140	200230	145790	31260	18311
MEAN	2329	2914	1967	841	1813	8866	9056	4650	6674	4703	1008	610
MAX	4620	5270	2690	1100	10600	20800	15300	9130	27700	11700	1810	896
MIN	510	1430	1000	560	510	2920	4490	2040	1390	1920	677	503
AC-FT	143200	173400	121000	51690	100700	545100	538900	285900	397200	289200	62000	36320

CAL YR 1982 TOTAL 496570 MEAN 1360 MAX 6000 MIN 26 AC-FT 984900
WTR YR 1983 TOTAL 1383677 MEAN 3791 MAX 27700 MIN 503 AC-FT 2745000

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981.
WATER TEMPERATURES: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,310 micromhos Jan. 20, 1977; minimum daily, 260 micromhos Mar. 20, 23, 1978.
WATER TEMPERATURES: Maximum daily, 31.0°C Feb. 19, 1975, July 23, 1976, July 11, 1981; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
NOV											
18...	1300	3110	960	7.8	1.0	65	--	1800	--	460	180
JAN											
26...	1700	620	1050	--	.0	--	--	--	--	--	--
FEB											
23...	1330	--	510	7.3	1.0	33	9.6	5100	>10000	220	71
28...	1750	9870	510	--	1.5	--	--	--	--	--	--
MAR											
02...	1200	12700	460	--	3.5	--	--	--	--	--	--
04...	1140	13300	520	--	5.5	--	--	--	--	--	--
08...	1415	19700	570	--	2.5	--	--	--	--	--	--
10...	1045	16400	610	--	.5	--	--	--	--	--	--
17...	1440	6600	820	--	2.5	--	--	--	--	--	--
24...	1105	3980	910	--	2.0	--	--	--	--	--	--
APR											
13...	1635	9170	790	--	5.0	--	--	--	--	--	--
19...	1535	10200	820	--	7.0	--	--	--	--	--	--
MAY											
04...	1500	6370	900	7.7	12.0	40	--	570	350	410	190
JUN											
07...	1100	1680	980	--	17.0	--	--	--	--	--	--
22...	1740	23300	410	--	26.0	--	--	--	--	--	--
27...	1925	8430	640	--	23.0	--	--	--	--	--	--
29...	1820	13900	560	--	19.5	--	--	--	--	--	--
JUL											
06...	1140	11200	640	--	23.5	--	--	--	--	--	--
21...	1520	2560	950	--	29.0	--	--	--	--	--	--
AUG											
16...	1050	849	830	8.1	27.5	30	--	K120	220	340	180
SEP											
20...	1305	525	830	--	13.0	--	--	--	--	--	--

> More than.
K Non-ideal colony count.

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
NOV 18...	110	46	24	10	.5	7.4	190	284	26	.40	17
JAN 26...	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	53	21	11	9	.3	11	81	148	14	.20	11
28...	--	--	--	--	--	--	--	--	--	--	--
MAR 02...	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
APR 13...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY 04...	95	43	22	10	.5	6.7	200	229	23	.30	7.8
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUL 06...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
AUG 16...	84	44	32	17	.8	5.4	210	161	38	.40	2.3
SEP 20...	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
NOV 18...	649	590	.88	5450	6.20	.210	.27	2.9	.210	.460	1.4
JAN 26...	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	319	300	.43	--	3.20	1.90	2.4	6.1	.530	.790	2.4
28...	--	--	--	--	--	--	--	--	--	--	--
MAR 02...	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
APR 13...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY 04...	563	540	.77	12700	4.60	.400	.52	2.1	.130	.300	.92
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUL 06...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
AUG 16...	565	490	.77	1300	2.60	.060	.08	3.7	.040	.230	.71
SEP 20...	--	--	--	--	--	--	--	--	--	--	--

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
NOV 18...	1300	--	3	--	<1	--	<1	<3	--	2	--
FEB 23...	1330	--	3	--	<1	--	<1	<3	--	8	--
MAY 04...	1500	--	3	--	<1	--	<1	<3	--	2	--
AUG 16...	1050	--	2	--	<1	--	<1	<3	--	3	--

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 18...	14	--	4	--	10	--	.2	--	4	--	18
FEB 23...	91	--	<1	--	84	--	<.1	--	2	--	15
MAY 04...	13	--	<1	--	8	--	.1	--	3	--	28
AUG 16...	5	--	3	--	51	--	<.1	--	4	--	11

< Less than.

06485696 BRULE CREEK NEAR ELK POINT, SD

LOCATION.--Lat 42°48'32", long 96°41'11", in SW¼SW¼ sec.6, T.92 N., R.49 W., Union County, Hydrologic Unit 10170203, on right bank 10 ft upstream from county highway bridge, 8.8 mi upstream from mouth, and 8.5 mi north of Elk Point.

DRAINAGE AREA.--205 mi^2.

PERIOD OF RECORD.--Oct. 1, 1982, to Sept. 30, 1983.

GAGE.--Water-stage recorder. Altitude of gage is 1,150 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 11 to Mar. 2, and period of no gage-height record, Oct. 1-26, which are poor. Several observations of specific conductance and water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 7	0015	1060	11.71	May 2	2145	603	9.63
Mar. 31	--	864	10.67	June 21	1300	3520	19.37
Apr. 13	--	1700	--	June 28	0915	*6290	*22.39

Minimum daily discharge, 8.0 ft^3/s Dec. 15-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	19	60	10	10	500	803	106	40	840	63	19
2	100	19	50	10	10	400	456	464	40	600	51	17
3	70	19	40	10	10	337	245	458	40	500	49	16
4	50	18	30	10	10	297	186	204	35	400	47	15
5	40	17	20	10	10	358	153	151	35	300	42	16
6	30	18	20	10	10	639	156	129	35	210	38	18
7	30	18	10	10	10	877	187	145	33	168	36	18
8	50	18	10	10	10	400	150	164	30	134	33	17
9	100	18	10	10	10	600	130	106	29	111	32	15
10	70	24	10	10	10	500	100	83	28	97	30	14
11	60	50	9.0	11	10	450	90	70	27	86	28	13
12	50	70	9.0	12	10	400	80	65	27	74	26	13
13	40	60	9.0	12	11	350	1500	77	60	68	25	13
14	30	70	9.0	12	12	300	1000	78	142	65	25	14
15	25	90	8.0	12	12	250	800	63	161	62	24	16
16	20	70	8.0	12	13	230	600	60	91	60	23	16
17	20	50	9.0	11	14	216	400	59	95	57	22	18
18	20	42	9.0	10	16	191	300	77	230	80	22	16
19	150	14	9.0	11	20	175	240	120	193	127	21	15
20	200	20	9.0	12	42	139	210	119	1300	85	20	14
21	150	23	10	12	100	109	174	96	2740	59	19	14
22	100	12	10	12	120	94	144	81	1230	58	18	14
23	70	10	10	12	150	85	120	68	581	130	18	13
24	50	10	10	12	200	86	100	60	312	68	18	13
25	40	10	10	12	150	96	87	55	200	73	19	13
26	35	10	10	12	110	105	80	55	500	56	20	13
27	29	10	10	11	200	200	70	50	1600	52	22	13
28	25	150	10	11	400	300	69	50	5520	51	19	12
29	23	100	10	11	---	400	68	45	3670	102	18	14
30	21	80	10	11	---	600	69	45	1860	261	17	19
31	20	---	10	10	---	850	---	40	---	106	17	---
TOTAL	1918	1139	458.0	341	1690	10534	8767	3443	20884	5140	862	451
MEAN	61.9	38.0	14.8	11.0	60.4	340	292	111	696	166	27.8	15.0
MAX	200	150	60	12	400	877	1500	464	5520	840	63	19
MIN	20	10	8.0	10	10	85	68	40	27	51	17	12
AC-FT	3800	2260	908	676	3350	20890	17390	6830	41420	10200	1710	895

WTR YR 1983 TOTAL 55627.0 MEAN 152 MAX 5520 MIN 8.0 AC-FT 110300

06486000 MISSOURI RIVER AT SIOUX CITY, IA

LOCATION.--Lat 42°29'09", long 96°24'49", in NW¼SE¼ sec.16, T.29 N., R.9 E., sixth principal meridian, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 20 and 77 at South Sioux City, Nebraska, 1.9 mi downstream from Big Sioux River, and at mile 732.3. Prior to Jan. 31, 1981, at site 227 ft downstream.

DRAINAGE AREA.--314,600 mi^2, approximately.

PERIOD OF RECORD.--October 1897 to current year in reports of Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only, published in WSP 1310. January 1879 to December 1890 (monthly discharges only) in House Document 238, 73rd Congress, 2d session, Missouri River. Gage-height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 716: 1929-30. WSP 876: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft National Geodetic Vertical Datum of 1929. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gages at various locations within 1.7 mi of present site and at various datums. Jan. 1, 1906, to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935, to Sept. 30, 1969, water-stage recorder at site 227 ft downstream at datum 19.98 ft higher, and Oct. 1, 1969, to Sept. 30, 1970, at datum 20.00 ft higher. Oct. 1, 1970, to Jan. 30, 1981, water-stage recorder at site 227 ft downstream at present datum.

REMARKS.--Records good. Flow regulated by upstream main-stem reservoirs. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite telemeter at station. Water-quality records published in WRD IA-82-1.

AVERAGE DISCHARGE.--86 years, 31,990 ft^3/s (23,130,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft^3/s Apr. 14, 1952 (gage height, 24.28 ft), datum then in use; minimum, 2,500 ft^3/s Dec. 29, 1941; minimum gage height, 9.00 ft Jan. 8, 1980, based on gage readings at site 14 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,200 ft^3/s Nov. 24, maximum gage height, 22.78 ft June 29; minimum daily discharge, 23,300 ft^3/s Jan. 18; minimum gage height, 14.60 ft Jan. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35000	39100	48700	27000	25600	40800	37300	29200	31600	35600	40300	37700
2	34900	38900	49200	26800	25200	40900	34700	31800	31500	38100	40700	37800
3	33900	38800	49700	26600	24600	41900	28700	34300	31700	35500	40900	36400
4	34000	39000	48100	26300	24100	40800	27000	34700	31400	34500	40600	37900
5	34300	42600	46500	27000	25400	38400	30400	33300	31400	34000	39900	38200
6	34900	41100	45000	27100	25400	38100	34900	32900	31200	33800	39800	38100
7	35600	41100	42500	27300	24700	40600	35000	32800	30900	35400	39500	37600
8	36100	41100	41000	26400	25400	41600	33600	31400	31000	34300	39200	37300
9	38700	41600	40300	27100	25700	38200	32800	30100	30900	32700	38900	38000
10	38000	42300	39500	27100	25700	37800	33100	28800	30900	31400	38900	36500
11	39300	42600	38600	26500	25600	36800	32600	30000	30600	30900	38500	37500
12	40400	44600	35200	25300	26000	37000	33100	30300	29900	30500	38000	37200
13	40900	44700	33400	27300	26000	36000	36800	29900	30900	31000	38300	37100
14	41200	45300	31000	26100	26200	35500	37400	28900	32200	32500	38500	36700
15	40100	44400	29200	24700	25700	36200	31200	29000	26000	33900	38500	37800
16	40500	44200	28500	24800	25800	34400	30100	29900	23700	35100	38800	36800
17	39900	44400	28900	24100	26300	32800	32400	30500	24700	36300	38800	37000
18	38900	46000	29300	23300	26400	33200	31600	31900	29100	37100	38600	37500
19	38700	47400	28700	25000	27000	33700	29800	31900	27400	37400	38100	37600
20	40200	47600	28500	25300	27200	35000	29500	31500	30900	39600	37700	36400
21	39200	47600	28400	25100	28200	35200	30000	31400	36000	39200	38200	37200
22	40100	46900	28300	26500	29400	34900	30400	31200	37400	39100	38200	36100
23	40300	49900	28300	25200	31000	34300	30800	31100	30400	41700	38300	37000
24	40400	49700	28500	25200	32700	33600	31200	31100	30800	41400	38600	36900
25	40000	48700	28700	25400	33600	33900	31600	31800	31200	40100	39100	37400
26	39600	48300	26600	24600	34000	34600	31200	32200	28100	39400	39000	37300
27	39900	47700	28500	24500	35500	34200	30900	32100	29400	39500	39200	37200
28	40300	48100	26800	25000	38100	32800	30600	31800	40700	39200	39100	36300
29	40500	48000	25800	26500	---	32500	29900	32000	44000	39200	38900	38300
30	39800	46400	27100	25500	---	32600	29300	32000	36700	39700	38500	38100
31	39400	---	26900	25000	---	34100	---	31800	---	40000	38000	---
TOTAL	1195000	1342100	1065700	799600	776500	1124400	957900	971600	942600	1128100	1207600	1118900
MEAN	38550	44740	34380	25790	27730	36270	31930	31340	31420	36390	38950	37300
MAX	41200	49900	49700	27300	38100	41900	37400	34700	44000	41700	40900	38300
MIN	33900	38800	25800	23300	24100	32500	27000	28800	23700	30500	37700	36100
AC-FT	2370000	2662000	2114000	1586000	1540000	2230000	1900000	1927000	1870000	2238000	2395000	2219000

CAL YR 1982 TOTAL 10951400 MEAN 30000 MAX 49900 MIN 10000 AC-FT 21720000
WTR YR 1983 TOTAL 12630000 MEAN 34600 MAX 49900 MIN 23300 AC-FT 25050000

441037103292701 OX BOW RANCH NEAR NEMO, SD

RAINFALL, ACCUMULATED (INCHES), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.00	.16	.00	.00	.00	.00	.18	.00	.00	.00	.00
2	.00	.00	.06	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.06	.00
5	.06	.00	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	1.20	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00
8	.70	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00
9	1.60	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00
10	.05	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.75	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.30	.00
13	.00	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.10
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.43	.00	.00	.00
17	.00	.00	.02	.00	.00	.00	.00	.00	.75	.00	.00	.00
18	.00	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.10	.00	.00	.00	.00	.00	.00	.20	.00	.35	.00
20	.00	.00	.00	.00	.00	.36	.00	.00	.00	.00	.40	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.05	.68	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.28	.00	.00	.00	.45	.00	.00
27	.20	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00	.00
28	.40	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00
29	.00	.00	.00	.00	---	.00	.12	.00	.40	.62	.00	.00
30	.00	.00	.00	.00	---	.00	.22	.40	.45	.00	.00	.20
31	.00	---	.00	.00	---	.00	---	.45	---	.00	.00	---

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06334500 - LITTLE MISSOURI R AT CAMP CROOK SD (LAT 45 32 49 LONG 103 58 23)					
OCT , 1982					
06...	1010	41	7.0	8.5	1270
NOV					
09...	1010	51	.5	.0	1120
DEC					
07...	1030	16	.0	-3.0	1600
MAR , 1983					
15...	1150	1050	5.5	--	--
MAY					
24...	1110	47	16.0	21.0	1660
JUN					
23...	0945	26	19.5	22.0	1950
JUL					
14...	0830	3.8	21.5	30.0	2050
AUG					
24...	0840	4.7	21.5	23.0	1940
06355500 - NORTH FORK GRAND R NEAR WHITE BUTTE SD (LAT 45 48 10 LONG 102 21 45)					
OCT , 1982					
13...	1420	144	8.5	20.0	2450
NOV					
09...	1630	91	.5	-6.0	--
DEC					
09...	0945	26	.0	-6.5	2250
JAN , 1983					
06...	1410	16	2.5	6.0	2100
FEB					
10...	1350	26	.0	2.0	--
MAR					
10...	1000	146	.0	-1.0	1750
APR					
07...	1140	54	11.0	6.5	2300
MAY					
04...	1610	30	14.5	20.0	3150
JUN					
02...	1320	53	24.5	25.0	2250
28...	1530	75	23.0	21.0	2330
JUL					
27...	1300	4.8	29.0	30.0	2100
SEP					
01...	1730	1.6	29.0	37.0	2990
06356000 - SOUTH FORK GRAND R AT BUFFALO SD (LAT 45 34 34 LONG 103 32 38)					
OCT , 1982					
06...	1155	4.1	8.0	12.5	970
NOV					
09...	1200	3.5	.5	.0	1380
DEC					
07...	1335	3.0	.0	-1.0	1850
JAN , 1983					
18...	1300	5.0	.0	--	1060
MAR					
15...	1505	4.6	5.0	11.5	1260
JUN					
23...	1145	12	20.5	28.0	1120
JUL					
14...	1030	1.1	22.5	32.0	1940
AUG					
23...	1750	22	23.5	22.5	850

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06356500 - SOUTH FORK GRAND R NEAR CASH SD (LAT 45 38 56 LONG 102 38 27)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT , 1982					
13...	1240	133	9.0	13.0	780
NOV					
09...	1445	16	.5	-6.5	1100
DEC					
09...	1205	6.5	.0	.0	2340
JAN , 1983					
06...	1255	9.6	2.0	4.5	--
FEB					
10...	--	3.5	.0	2.0	--
MAR					
10...	1155	48	.0	12.0	--
APR					
07...	1010	20	6.5	9.0	2150
MAY					
04...	1425	16	14.0	18.5	2340
JUN					
02...	1200	17	19.0	25.0	2700
28...	1415	13	23.0	28.0	2180
JUL					
27...	1150	11	27.0	29.5	2450
SEP					
01...	1525	8.2	25.0	38.0	1850

06357500 - GRAND R AT SHADEHILL SD (LAT 45 45 25 LONG 102 11 41)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT , 1982					
13...	1600	111	12.0	16.0	1900
NOV					
10...	0800	93	.5	-4.0	1470
DEC					
08...	1535	91	1.0	-9.0	1450
JAN , 1983					
06...	1515	111	2.0	6.5	1700
MAR					
09...	1600	97	2.0	-3.5	1560
APR					
07...	1300	109	6.0	12.5	1750
MAY					
04...	1730	54	10.0	16.0	1580
JUN					
02...	1430	107	20.0	15.5	1750
JUL					
27...	1500	97	23.5	32.0	--
SEP					
02...	0720	118	22.5	16.0	1760

06359500 - MOREAU R NEAR FAITH SD (LAT 45 11 52 LONG 102 09 22)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT , 1982					
14...	0900	1060	9.0	4.5	630
NOV					
09...	1250	32	.5	-5.5	1070
DEC					
08...	1320	28	.0	-6.0	1540
JAN , 1983					
06...	1030	9.6	.0	4.0	2700
MAR					
09...	1350	93	.0	-2.5	1040
APR					
06...	1430	39	8.5	11.5	2250
MAY					
05...	0835	23	12.0	13.0	2600
JUN					
03...	0710	16	16.0	10.0	2350
29...	0945	8.2	20.0	19.0	2600
SEP					
02...	1005	19	24.0	33.5	1190

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06395000 - CHEYENNE R AT EDGEMONT SD (LAT 43 18 20 LONG 103 49 14)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
05...	1715	66	10.0	8.0	1740
NOV					
02...	1015	96	2.5	3.0	3210
DEC					
07...	1700	24	.0	-5.0	4450
JAN , 1983					
18...	1330	30	.0	7.5	3080
MAR					
08...	1105	66	4.5	6.5	2850
APR					
12...	1140	58	6.0	5.0	3400
MAY					
19...	1250	48	15.5	15.5	3290
JUN					
14...	0840	31	13.5	16.0	5050
JUL					
12...	1105	7.4	26.5	28.0	4000
AUG					
02...	1015	4.6	26.0	30.0	3900
SEP					
07...	1240	3.3	25.0	33.5	3610

06400000 - HAT CR NEAR EDGEMONT SD (LAT 43 14 46 LONG 103 35 16)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
05...	1625	1.3	12.0	10.0	1790
NOV					
02...	1300	6.3	6.0	4.5	2090
DEC					
07...	1500	3.6	.5	-5.0	2860
JAN , 1983					
18...	1655	6.6	.0	-4.0	1100
MAR					
08...	1400	8500	8.0	7.0	2240
APR					
12...	1500	20	7.0	4.5	1100
MAY					
19...	1815	310	11.5	15.0	597
JUN					
13...	1700	3.7	20.5	19.5	2050
JUL					
12...	1350	1800	30.0	32.5	2880

06400497 - CASCADE SPRINGS NEAR HOT SPRINGS SD (LAT 43 20 20 LONG 103 33 08)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
05...	1145	22	20.0	15.5	2560
JAN , 1983					
19...	0945	21	20.0	.0	2520
APR					
12...	1810	21	20.0	4.0	2610
JUL					
12...	1615	21	21.0	30.0	2520

06400870 - HORSEHEAD CREEK NEAR OELRICHS SD (LAT 43 06 57 LONG 103 13 42)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
MAR , 1983					
07...	1050	1.6	4.5	6.0	1220
APR					
13...	1755	.66	4.5	.0	1190
MAY					
23...	1340	56	14.5	26.0	1160
JUN					
01...	1145	3.1	17.0	--	--

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
06401500	- CHEYENNE R BELOW ANGOSTURA DAM SD (LAT 43 20 42 LONG 103 26 12)				
JAN , 1983					
19...	1715	24	2.0	-.5	2070
MAR					
09...	1220	97	5.0	3.5	2040
APR					
13...	1445	62	5.5	5.5	2080
MAY					
23...	1745	102	12.0	25.5	1550
JUN					
15...	1415	2.4	23.0	25.5	2050
JUL					
13...	1315	1.5	27.0	36.0	2170
AUG					
02...	1240	1.4	28.0	35.0	2020
06402000	- FALL R AT HOT SPRINGS SD (LAT 43 25 50 LONG 103 28 33)				
OCT , 1982					
06...	1230	22	24.5	15.5	1280
NOV					
02...	1525	22	22.0	3.5	1290
DEC					
07...	0950	21	21.5	-5.0	1300
JAN , 1983					
19...	1250	21	22.0	8.0	1250
MAR					
09...	0930	20	22.5	1.0	1340
APR					
13...	1045	21	22.5	6.0	1280
MAY					
19...	0940	23	24.0	13.5	1260
JUN					
15...	0835	20	24.5	15.5	1280
JUL					
13...	1035	18	28.0	31.0	1240
SEP					
08...	0740	18	25.0	22.5	1200
06402500	- BEAVER CR NEAR BUFFALO GAP SD (LAT 43 27 56 LONG 103 18 22)				
OCT , 1982					
06...	1540	9.5	12.0	15.0	2430
NOV					
03...	0905	10	4.5	.0	2470
DEC					
08...	1240	9.9	1.5	-.5	2450
JAN , 1983					
20...	0955	8.5	1.5	.0	2370
MAR					
09...	1610	7.3	8.0	6.0	2400
APR					
14...	1400	5.2	6.5	14.0	2520
MAY					
18...	1450	11	15.5	20.5	2370
JUN					
15...	1630	1.3	20.5	25.0	2560
JUL					
13...	1710	.38	26.5	36.5	2930
SEP					
08...	1620	4.4	21.0	27.0	2160

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
06403300 - FRENCH CREEK ABOVE FAIRBURN SD (LAT 43 43 02 LONG 103 22 03)					
OCT , 1982					
07...	1205	18	8.0	16.5	280
NOV					
08...	1040	9.4	1.5	1.5	270
DEC					
09...	1315	1.9	.0	5.5	281
JAN , 1983					
28...	1100	1.6	.5	9.0	281
MAR					
10...	1205	6.2	3.0	8.5	266
APR					
18...	1130	9.1	7.0	16.5	298
MAY					
24...	1155	13	13.0	21.0	287
JUN					
16...	1125	9.2	15.0	15.5	278
JUL					
14...	1035	2.3	20.5	34.0	287
SEP					
12...	1310	5.5	15.5	18.5	286
06404000 - BATTLE CR NEAR KEYSTONE SD (LAT 43 52 18 LONG 103 20 09)					
OCT , 1982					
12...	1305	7.1	7.5	15.0	227
NOV					
03...	1510	3.3	2.0	2.0	256
DEC					
10...	1550	1.9	.0	-5.0	288
JAN , 1983					
20...	1250	1.1	.5	5.5	323
MAR					
11...	1005	2.2	1.5	15.0	257
APR					
14...	1745	3.6	6.5	4.0	200
MAY					
16...	1155	19	9.5	9.5	151
JUN					
21...	0915	10	18.5	20.0	183
JUL					
15...	1400	.68	25.0	22.0	220
06404998 - GRACE COOLIDGE CR NR GAME LODGE NR CUSTER (LAT 43 45 40 LONG 103 21 49)					
OCT , 1982					
07...	1500	3.5	11.0	19.5	153
NOV					
08...	1430	2.7	3.5	2.0	152
DEC					
10...	1020	2.1	.0	1.5	166
JAN , 1983					
28...	1505	1.4	1.0	6.0	171
MAR					
10...	1520	1.1	8.0	11.5	172
APR					
18...	1435	2.9	11.0	17.5	155
MAY					
24...	1615	6.7	17.0	20.5	130
JUN					
16...	1545	3.0	15.0	16.5	148
JUL					
14...	1330	1.3	26.0	34.5	180
SEP					
12...	1640	.20	15.5	17.0	198

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06406000 - BATTLE CR AT HERMOSA SD (LAT 43 49 41 LONG 103 11 44)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT , 1982					
12...	1010	9.2	7.5	10.0	619
NOV					
08...	1630	8.7	6.0	2.0	616
DEC					
08...	1630	6.6	.0	-5.0	673
FEB , 1983					
01...	1005	5.1	1.0	2.5	658
MAR					
11...	1230	4.8	8.5	18.0	657
APR					
19...	0935	5.7	10.0	13.0	637
MAY					
16...	1455	12	9.5	8.5	460
JUN					
21...	1135	7.9	20.5	25.0	550
JUL					
14...	1540	4.4	24.5	33.0	565
SEP					
13...	1010	4.1	13.5	16.0	630

06408500 - SPRING CR NEAR HERMOSA SD (LAT 43 56 30 LONG 103 09 33)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT , 1982					
07...	1750	1.4	9.5	14.0	962
NOV					
04...	1715	1.8	1.0	-5.0	--
DEC					
09...	1655	1.8	.0	-3.0	1070
JAN , 1983					
20...	1635	1.6	.0	-.5	1090
MAR					
11...	1605	1.1	8.5	17.0	1040
APR					
19...	1200	1.1	12.5	15.5	1070
MAY					
25...	1425	1.3	20.0	21.5	1070
JUN					
21...	1420	9.5	22.0	28.0	730
JUL					
15...	1115	1.6	21.0	22.5	990
SEP					
15...	0920	1.8	14.5	15.5	958

06408700 - RHOADS FORK NEAR ROCHFORD SD (LAT 44 08 12 LONG 103 51 29)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT , 1982					
14...	1655	5.9	8.0	11.0	423
NOV					
15...	1135	5.1	4.5	1.0	440
DEC					
01...	1130	6.2	5.0	12.0	470
JAN , 1983					
31...	1115	5.3	3.5	7.0	440
MAR					
24...	1030	4.6	5.5	3.5	438
APR					
27...	1310	5.3	8.0	12.5	450
MAY					
17...	1020	6.5	5.0	5.0	440
JUN					
20...	0945	5.5	8.0	11.0	480
JUL					
20...	1105	6.3	11.5	29.0	450
SEP					
06...	1435	5.9	11.5	21.5	442

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06410000 - CASTLE CR BELOW DEERFIELD DAM SD (LAT 44 01 45 LONG 103 46 53)					
OCT , 1982					
22...	1300	.23	6.5	--	290
NOV					
02...	1235	.13	3.5	2.0	355
DEC					
09...	1545	1.4	.0	--	500
JAN , 1983					
27...	1050	1.6	6.5	8.5	1950
MAR					
21...	1405	16	3.5	20.0	540
APR					
18...	1145	17	3.5	17.5	500
MAY					
20...	1140	35	6.5	11.0	560
JUN					
07...	1100	8.2	9.5	13.5	430
JUL					
19...	1200	51	14.5	35.0	403
SEP					
02...	1100	4.1	14.0	26.0	440
06410500 - RAPID CR ABOVE PACTOLA RES NEAR SILVER CITY SD (LAT 44 05 05 LONG 103 34 48)					
OCT , 1982					
14...	1220	34	5.0	17.0	366
NOV					
05...	1115	42	.0	5.5	338
DEC					
13...	1315	22	.0	3.5	372
JAN , 1983					
27...	1445	21	.0	7.5	380
MAR					
16...	1300	38	2.0	2.0	350
APR					
20...	1455	100	8.5	15.5	308
MAY					
17...	1435	170	6.5	12.0	291
JUN					
22...	1430	93	18.0	22.5	293
JUL					
19...	0935	36	15.5	22.5	356
SEP					
14...	0930	24	10.0	11.0	374
06411500 - RAPID CR BELOW PACTOLA DAM SD (LAT 44 04 36 LONG 103 28 54)					
OCT , 1982					
14...	0935	27	8.0	12.5	376
NOV					
05...	1350	37	9.0	8.5	358
DEC					
13...	1540	38	4.0	6.5	360
JAN , 1983					
27...	1715	22	2.5	9.0	357
MAR					
21...	1250	48	4.0	.0	374
APR					
20...	0945	68	4.5	19.5	369
MAY					
17...	1655	178	5.5	12.5	358
JUN					
22...	1645	112	6.5	20.5	362
JUL					
19...	1135	85	7.0	29.0	357
SEP					
14...	1150	27	8.0	19.5	350

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD (LAT 44 03 04 LONG 103 18 47)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
04...	1130	24	10.5	--	395
NOV					
10...	0930	14	3.5	5.5	381
DEC					
16...	1040	15	1.0	4.0	375
JAN , 1983					
06...	1545	19	1.0	4.0	372
MAR					
17...	0925	28	2.0	-1.0	389
APR					
15...	1235	27	6.0	12.5	368
MAY					
26...	0905	174	8.0	16.5	365
JUN					
24...	1200	120	15.0	24.0	361
JUL					
12...	0910	62	13.5	27.5	390
SEP					
06...	1025	42	13.0	25.5	350

06414000 - RAPID CR AT RAPID CITY SD (LAT 44 05 09 LONG 103 14 31)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
04...	1445	47	15.0	18.0	530
NOV					
10...	1215	29	7.5	6.0	578
DEC					
15...	1650	38	3.5	-1.0	544
JAN , 1983					
07...	1010	38	4.0	5.5	519
MAR					
17...	1130	42	5.0	-1.0	483
APR					
15...	1035	89	7.0	7.5	443
MAY					
25...	1700	196	14.0	26.0	390
JUN					
24...	1015	110	18.0	28.0	405
JUL					
12...	1035	59	18.5	28.0	440
SEP					
06...	1205	58	17.5	28.0	430

06418900 - RAPID CREEK BELOW SEWAGE PLANT NR RAPID CITY SD (LAT 44 01 24 LONG 103 05 43)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
15...	1435	75	14.0	15.5	1100
NOV					
15...	1300	77	4.5	9.0	1090
DEC					
15...	1335	71	2.0	6.0	764
JAN , 1983					
26...	1550	55	2.5	-3.0	937
MAR					
14...	1225	68	8.5	12.5	733
APR					
15...	1545	117	8.5	9.0	819
MAY					
12...	1100	355	5.0	9.5	595
JUN					
23...	1125	146	19.0	26.5	727
JUL					
12...	1545	34	22.5	32.0	1180
SEP					
06...	1415	24	20.0	29.0	1400

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06421500 - RAPID CR NEAR FARMINGDALE SD (LAT 43 56 31 LONG 102 51 12)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT , 1982					
15...	1035	91	11.0	15.0	1100
NOV					
12...	1515	100	.0	.0	1060
DEC					
03...	1540	97	.0	8.5	908
JAN , 1983					
26...	1215	51	.0	-2.5	856
MAR					
14...	1005	68	8.0	13.0	876
APR					
19...	1545	128	14.0	21.5	760
MAY					
25...	1015	214	16.0	21.5	560
JUN					
23...	0905	161	21.0	24.0	624
JUL					
12...	1400	26	25.0	33.0	1020
SEP					
09...	1040	50	19.5	27.5	1060

06422500 - BOXELDER CR NEAR NEMO SD (LAT 44 08 38 LONG 103 27 16)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT , 1982					
12...	1655	12	7.0	7.0	290
NOV					
15...	1400	29	.0	7.0	220
DEC					
14...	1420	13	.0	-.5	273
JAN , 1983					
28...	1155	8.9	.5	9.0	300
MAR					
21...	1715	19	.5	-2.5	235
APR					
21...	1110	84	7.0	16.0	169
MAY					
12...	1455	101	6.5	6.5	1460
JUN					
23...	1435	27	22.0	30.0	261
JUL					
19...	1410	14	24.5	33.5	283
SEP					
14...	1450	6.5	18.0	24.0	310

06423010 - BOXELDER CR NEAR RAPID CITY SD (LAT 44 07 54 LONG 103 17 54)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
MAY , 1983					
04...	1055	9.3	10.0	18.5	281
09...	0945	67	12.0	19.5	232
13...	1010	59	7.0	8.0	218
16...	0930	42	8.0	3.5	232
26...	1120	20	15.5	27.5	330
31...	1215	8.6	13.0	12.5	318
JUN					
06...	1445	3.2	16.0	19.0	352
24...	1435	2.7	18.5	31.5	375
JUL					
20...	1455	.64	21.5	36.5	407

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06423500 - CHEYENNE R NEAR WASTA SD (LAT 44 04 52 LONG 102 24 03)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT, 1982					
13...	1530	358	10.5	21.0	1230
NOV					
12...	1040	74	--	--	--
DEC					
03...	1105	175	--	--	--
JAN, 1983					
03...	0915	143	--	--	--
03...	1030	143	-.5	--	1900
APR					
22...	1330	277	--	--	--
22...	1450	277	13.0	--	1600
MAY					
19...	0930	503	--	--	--
19...	1130	503	12.5	--	1210
JUN					
09...	0900	127	--	--	--
09...	0945	127	20.5	--	2110
JUL					
19...	0830	157	--	--	--
19...	0830	157	--	--	--
19...	0930	157	26.5	--	1000
AUG					
30...	0845	70	--	--	--
30...	0845	70	--	--	--
30...	1000	70	24.5	--	2170
SEP					
26...	0935	108	--	--	--
26...	1045	108	15.5	--	2060

06425100 - ELK CR NR RAPID CITY SD (LAT 44 14 25 LONG 103 09 03)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT, 1982					
13...	1020	12	6.0	12.5	544
NOV					
15...	1125	1.9	2.0	9.0	1540
DEC					
15...	1100	2.3	.5	.0	1490
JAN, 1983					
28...	1510	3.6	1.0	4.5	1550
MAR					
14...	1545	5.4	6.5	4.5	1260
APR					
21...	1630	11	11.5	14.0	1110
MAY					
09...	1140	79	15.0	21.5	543
JUN					
24...	1725	6.4	26.0	28.0	1060
JUL					
20...	1220	2.3	29.5	40.0	995
SEP					
09...	1215	.54	21.5	34.0	1160

06425500 - ELK CR NEAR ELM SPRINGS SD (LAT 44 14 54 LONG 102 30 10)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
OCT, 1982					
19...	1315	17	6.5	8.0	1320
JAN, 1983					
26...	1115	3.3	.0	7.5	2440
MAR					
10...	1100	10	2.5	5.0	2750
APR					
14...	1200	15	5.5	14.5	2200
MAY					
09...	1330	43	20.5	28.5	1570
JUN					
27...	1525	3.5	23.5	24.0	1960

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06428500 - BELLE FOURCHE R AT WY-SD STATE LINE (LAT 44 44 59 LONG 104 02 49)					
OCT , 1982					
26...	0915	20	7.0	6.5	2000
JAN , 1983					
18...	1030	55	.0	2.0	1900
APR					
12...	1245	213	5.0	4.5	1160
JUL					
20...	1450	71	31.0	38.5	--
06429905 - SAND CR NEAR RANCH A NEAR BEULAH WY (LAT 44 31 13 LONG 104 05 00)					
OCT , 1982					
23...	1045	23	--	--	--
26...	1045	23	10.5	13.0	780
JAN , 1983					
18...	1150	22	4.5	-1.5	810
APR					
12...	1425	21	7.0	-2.0	575
JUL					
20...	1330	29	19.0	--	825
06430000 - MURRAY DITCH AT WY-SD STATE LINE (LAT 44 34 35 LONG 104 02 58)					
OCT , 1982					
05...	1600	7.7	8.5	10.0	1390
JUN , 1983					
22...	1355	1.9	25.5	--	--
JUL					
13...	1350	20	20.0	36.0	1390
SEP					
07...	1335	15	15.0	37.0	1320
06430500 - REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26 LONG 104 02 54)					
OCT , 1982					
05...	1500	24	10.5	--	1500
NOV					
08...	1435	37	7.0	--	1480
DEC					
06...	1450	35	4.5	-3.5	1460
JAN , 1983					
17...	1515	36	3.5	-3.0	1540
MAR					
14...	1445	36	8.0	--	1480
APR					
11...	1600	36	9.0	--	--
MAY					
23...	1110	74	12.5	--	1050
JUN					
22...	1525	46	19.5	--	1340
JUL					
13...	1530	7.8	22.0	--	--
SEP					
07...	1600	21	17.0	34.5	1420

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
06431500 - SPEARFISH CR AT SPEARFISH SD (LAT 44 29 57 LONG 103 51 40)					
OCT , 1982					
05...	1030	48	10.0	8.0	420
NOV					
08...	1150	71	4.0	5.5	415
DEC					
06...	1150	54	2.5	1.5	430
JAN , 1983					
17...	1040	31	1.0	-.5	460
MAR					
14...	1200	73	4.0	6.5	375
JUN					
22...	1055	78	10.5	22.0	475
JUL					
13...	1015	55	11.5	34.0	450
SEP					
07...	1100	48	10.0	27.5	415
06433000 - REDWATER RIVER ABOVE BELLE FOURCHE SD (LAT 44 40 02 LONG 103 50 20)					
OCT , 1982					
07...	1130	147	10.0	15.5	1260
NOV					
09...	1645	179	4.0	--	--
JAN , 1983					
19...	1125	155	3.0	7.0	1280
MAR					
16...	1235	196	5.5	.0	1200
MAY					
10...	1420	727	13.5	18.0	644
JUN					
24...	1005	106	20.5	28.5	1200
JUL					
14...	1620	14	28.0	35.5	1500
SEP					
08...	1345	90	18.5	27.5	1200
06433500 - HAY CR AT BELLE FOURCHE SD (LAT 44 40 01 LONG 103 50 46)					
OCT , 1982					
06...	1645	1000	--	--	2900
NOV					
10...	0740	5400	2.5	2.0	2420
JAN , 1983					
17...	1640	6600	.0	-5.0	3600
MAR					
14...	1620	6.9	4.5	8.0	2000
MAY					
24...	0815	1.8	14.5	16.0	3100

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06436000 - BELLE FOURCHE R NEAR FRUITDALE SD (LAT 44 41 27 LONG 103 44 14)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
07...	1305	5.9	11.0	17.0	2350
NOV					
09...	1500	7.3	2.5	--	--
DEC					
08...	1305	6.6	--	--	--
JAN , 1983					
05...	0915	4.4	--	--	--
05...	1045	4.4	.5	--	2570
APR					
21...	1130	431	12.0	--	1360
21...	1200	428	--	--	--
MAY					
07...	1600	824	--	--	--
07...	2200	957	--	--	--
08...	1000	867	--	--	--
23...	1145	538	15.0	--	873
23...	1300	546	--	--	--
23...	1300	546	--	--	--
JUN					
13...	1230	24	--	--	--
13...	1230	24	--	--	--
13...	1415	24	19.5	--	1600
JUL					
20...	1030	12	--	--	--
20...	1030	12	--	--	--
20...	1130	10	27.0	--	2210
AUG					
25...	1045	14	--	--	--
25...	1045	14	--	--	--
25...	1200	14	25.5	--	1890
SEP					
27...	1120	4.4	--	--	--
27...	1245	4.4	17.5	--	2200

06436170 - WHITEWOOD CREEK AT DEADWOOD SD (LAT 44 22 48 LONG 103 43 25)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
18...	1620	81	6.5	3.5	445
NOV					
05...	1405	48	5.5	10.0	590
DEC					
10...	1450	19	2.0	.0	770
JAN , 1983					
20...	1110	15	4.0	2.0	950
MAR					
14...	1015	57	4.5	12.5	460
APR					
15...	1155	40	5.0	10.0	560
MAY					
27...	1045	89	12.5	27.5	430
JUN					
28...	1335	17	25.0	22.0	690
JUL					
15...	1310	22	18.5	25.5	900
SEP					
16...	1130	18	14.0	23.0	945

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06436190 - WHITEWOOD CREEK NEAR WHITEWOOD SD (LAT 44 32 30 LONG 103 34 16)					
OCT , 1982					
18...	1405	101	8.5	10.5	700
NOV					
05...	1615	58	5.0	8.0	840
DEC					
10...	1640	27	--	--	--
JAN , 1983					
06...	1115	23	--	--	--
06...	1115	23	--	--	--
06...	1215	23	3.5	--	1080
APR					
19...	0840	108	--	--	--
19...	1030	116	9.0	--	578
20...	1100	131	--	--	--
20...	1130	131	10.5	--	506
26...	1530	273	--	--	--
26...	1530	273	--	--	--
26...	1615	269	11.0	--	388
MAY					
20...	1030	110	--	--	--
20...	1030	110	--	--	--
20...	1100	110	11.0	--	568
JUN					
10...	1100	47	18.0	--	850
10...	1100	47	--	--	--
JUL					
14...	1440	17	--	--	--
14...	1440	17	--	--	--
14...	1530	17	28.0	--	1070
AUG					
26...	1025	20	--	--	--
26...	1025	20	--	--	--
26...	1115	21	22.5	--	982
SEP					
29...	1215	19	10.0	--	1060
06436760 - HORSE CR ABOVE VALE SD (LAT 44 39 08 LONG 103 21 59)					
OCT , 1982					
07...	1525	14	11.0	17.0	2500
NOV					
10...	1505	8.4	3.5	6.5	4400
JAN , 1983					
19...	1530	93	1.5	6.0	1220
MAR					
16...	1515	124	4.5	6.0	2200
MAY					
24...	1635	7.4	21.0	22.0	4100
JUN					
24...	1335	34	26.0	33.0	2160
JUL					
15...	1100	61	22.0	27.0	2100
SEP					
08...	1645	44	21.0	28.0	1820

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06438500 - CHEYENNE R NEAR PLAINVIEW SD (LAT 44 31 16 LONG 101 59 34)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
JAN , 1983					
04...	1330	240	--	--	--
04...	1445	240	.5	--	2380
APR					
25...	1345	1080	--	--	--
25...	1500	1080	18.5	--	1580
MAY					
25...	1400	1450	--	--	--
25...	1400	1450	--	--	--
25...	1545	1450	22.5	--	1550
JUN					
14...	1345	443	--	--	--
14...	1345	443	--	--	--
14...	1445	443	21.5	--	--
JUL					
22...	1230	374	--	--	--
22...	1230	374	--	--	--
22...	1330	374	24.0	--	1890
AUG					
31...	1315	384	--	--	--
31...	1315	384	--	--	--
31...	1400	384	28.5	--	1860
SEP					
28...	1330	293	--	--	--
28...	1430	293	19.0	--	1980

06439000 - CHERRY CR NEAR PLAINVIEW SD (LAT 44 44 38 LONG 102 03 11)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
14...	1100	575	9.5	15.5	1040
NOV					
10...	1030	3.0	.5	2.0	1500
DEC					
10...	0950	1.6	.0	-8.0	2260
FEB , 1983					
11...	1050	5.2	.0	-6.5	--
MAR					
11...	0920	37	.0	9.0	1620
APR					
08...	0905	6.9	8.0	12.5	2180
MAY					
05...	1020	3.2	13.0	22.0	--
JUN					
03...	0825	1.8	19.0	18.0	4200

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06441500 - BAD R NEAR FORT PIERRE SD (LAT 44 19 36 LONG 100 23 02)					
OCT , 1982					
01...	1445	.04	5.5	3.0	2400
20...	1000	119	7.0	1.5	940
NOV					
05...	1030	4.1	2.5	--	--
23...	1340	3.1	.0	-6.5	--
DEC					
17...	1310	2.8	2.0	--	--
20...	1535	3.0	1.0	12.0	--
28...	1400	1.8	2.0	--	--
30...	1430	1.6	2.0	--	--
JAN , 1983					
07...	1440	2.0	1.0	4.5	--
14...	1345	--	2.0	--	--
21...	1010	2.4	2.0	--	--
FEB					
07...	1230	2.1	1.0	--	--
11...	1520	2.3	5.0	--	--
16...	1315	6.0	3.0	--	--
24...	1445	15	1.5	4.0	2800
MAR					
25...	1325	7.9	3.0	2.0	--
APR					
22...	1440	81	16.5	17.0	2700
MAY					
02...	0940	8400	16.0	--	--
02...	1200	5860	16.0	15.0	--
05...	1000	3200	14.5	16.5	780
23...	0950	103	15.0	18.0	1790
JUN					
25...	0950	88	22.5	23.0	2900
JUL					
25...	1120	.10	27.5	33.0	3100
06442500 - MEDICINE CR AT KENNEBEC SD (LAT 43 56 17 LONG 099 52 35)					
OCT , 1982					
22...	1450	17	4.0	16.5	720
FEB , 1983					
25...	1100	1.3	.0	2.0	1210
MAR					
25...	1220	5.7	2.0	5.0	1800
APR					
22...	1445	31	12.5	21.0	1090
MAY					
04...	1530	637	14.5	18.0	970
27...	1000	8.9	16.5	24.0	830
JUN					
17...	1350	6.7	16.5	15.5	875
06442950 - CROW CR NEAR GANN VALLEY SD (LAT 43 59 29 LONG 099 13 07)					
OCT , 1982					
21...	1425	16	3.5	13.0	540
JAN , 1983					
20...	1145	.00	3.0	-1.0	2980
FEB					
24...	1625	.52	1.0	.0	1840
MAR					
24...	1545	11	2.5	7.0	1530
APR					
21...	1605	6.8	14.5	18.5	1330
MAY					
27...	1320	3.6	18.5	30.0	1400
JUN					
16...	1710	174	19.0	16.0	--

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06446000 - WHITE R NEAR OGLALA SD (LAT 43 15 17 LONG 102 49 29)					
OCT , 1982					
04...	1530	16	12.0	17.0	670
NOV					
01...	1125	16	7.0	9.0	870
DEC					
06...	1240	26	.0	1.5	585
JAN , 1983					
17...	1450	25	.0	4.0	820
MAR					
07...	1620	57	3.0	4.5	593
APR					
11...	1210	85	8.0	14.0	836
MAY					
20...	1555	760	12.0	20.5	769
JUN					
13...	1055	72	19.5	18.0	680
JUL					
11...	1225	28	23.0	23.0	639
SEP					
08...	1120	6.1	20.5	29.0	1140
06447000 - WHITE R NEAR KADOKA SD (LAT 43 45 09 LONG 101 31 28)					
OCT , 1982					
19...	1050	121	.5	-1.5	610
NOV					
10...	1230	76	5.5	6.5	640
DEC					
20...	1205	46	2.0	3.0	980
JAN , 1983					
17...	1130	61	.0	-6.0	650
FEB					
22...	1100	135	4.0	14.0	550
MAR					
22...	1000	94	1.0	.0	--
APR					
19...	1135	321	11.5	16.0	460
MAY					
17...	1120	784	13.5	16.5	580
JUN					
14...	1030	116	17.5	19.0	790
JUL					
12...	1030	65	26.0	27.0	1240
AUG					
23...	1145	2300	21.0	28.0	510
06447500 - LITTLE WHITE R NEAR MARTIN SD (LAT 43 10 00 LONG 101 37 47)					
OCT , 1982					
20...	0845	15	.5	-10.0	--
DEC					
20...	1315	15	3.0	11.0	330
JAN , 1983					
18...	0845	15	.0	-5.0	270
FEB					
22...	1630	33	2.0	10.0	200
MAR					
22...	1140	25	2.0	.0	380
APR					
19...	1805	34	13.5	12.0	455
MAY					
20...	1005	51	12.0	16.0	630
JUN					
14...	1620	14	18.0	19.0	435
JUL					
12...	1145	10	26.0	30.5	470
AUG					
24...	0725	17	21.5	19.5	465

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
06449000 - LAKE CR BELOW REFUGE NEAR TUTHILL SD (LAT 43 02 46 LONG 101 30 38)					
OCT , 1982					
19...	1600	6.6	.5	-3.0	580
DEC					
20...	1400	22	2.5	10.5	--
JAN , 1983					
17...	1600	26	2.0	-5.0	470
FEB					
22...	1515	18	9.0	13.5	360
MAR					
22...	1250	23	2.5	.0	470
MAY					
20...	0950	101	13.5	21.0	390
JUN					
14...	1455	25	18.5	18.0	435
JUL					
12...	1345	1.1	28.0	30.0	430
AUG					
23...	1635	6.6	25.0	27.0	550
06449100 - LITTLE WHITE R NEAR VETAL SD (LAT 43 06 03 LONG 101 13 49)					
OCT , 1982					
19...	1330	41	1.0	.0	320
DEC					
21...	0940	57	2.0	8.5	420
JAN , 1983					
17...	1355	40	.0	-7.0	390
FEB					
22...	1320	63	7.5	12.0	288
MAR					
22...	1410	62	1.5	5.0	400
APR					
19...	1400	53	--	20.0	380
MAY					
18...	0830	291	9.5	7.5	390
24...	1250	164	21.5	29.0	470
JUN					
14...	1300	64	20.0	21.0	670
JUL					
12...	1520	45	25.5	30.0	520
AUG					
23...	1455	52	25.0	29.0	420
06449400 - ROSEBUD CR AT ROSEBUD SD (LAT 43 14 09 LONG 100 51 12)					
OCT , 1982					
20...	1255	7.8	3.0	-2.5	380
21...	1240	8.0	5.5	15.5	430
JAN , 1983					
18...	1300	5.9	1.0	-1.0	400
FEB					
23...	1100	7.0	5.0	11.0	340
MAR					
23...	0910	7.4	3.5	.0	370
APR					
20...	1225	7.9	14.0	18.0	360
MAY					
18...	1140	14	10.5	9.0	420
JUN					
15...	1010	7.8	17.0	17.0	340
JUL					
13...	0840	4.9	24.5	24.0	480
AUG					
24...	1150	5.4	24.5	26.0	340

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06449500 - LITTLE WHITE R NEAR ROSEBUD SD (LAT 43 19 32 LONG 100 53 00)					
OCT , 1982					
20...	1405	99	2.0	3.0	310
NOV					
09...	1345	102	5.5	.0	330
DEC					
21...	1345	123	2.5	15.5	410
JAN , 1983					
18...	1400	94	.0	-1.0	360
MAR					
23...	1020	141	2.5	.0	340
APR					
20...	1345	137	16.5	20.0	360
MAY					
18...	1250	335	9.5	12.0	380
JUN					
15...	1125	149	20.0	20.5	--
JUL					
13...	1040	121	26.5	31.0	450
AUG					
24...	1320	101	27.0	32.5	360
06450500 - LITTLE WHITE R BELOW WHITE RIVER SD (LAT 43 36 04 LONG 100 44 52)					
OCT , 1982					
20...	1700	206	2.0	9.5	--
DEC					
21...	1530	161	3.0	15.5	400
FEB , 1983					
15...	1235	134	2.0	16.0	450
23...	1440	140	8.0	11.5	420
MAR					
23...	1250	134	2.0	5.0	410
APR					
20...	1525	155	17.0	21.0	430
MAY					
18...	1450	419	12.5	11.0	500
JUN					
15...	1320	163	23.0	23.5	570
JUL					
13...	1350	111	26.5	37.0	1350
06453255 - CHOTEAU CREEK NR AVON SD (LAT 42 55 24 LONG 098 06 21)					
OCT , 1982					
20...	1315	1.0	7.0	7.5	1160
NOV					
16...	1150	5.2	2.5	10.5	1340
JAN , 1983					
28...	0945	3.7	.0	.0	2040
FEB					
18...	1730	230	.0	9.0	930
22...	1530	312	1.0	13.0	910
25...	1020	213	1.0	1.0	840
28...	1430	148	4.0	5.5	700
MAR					
23...	0840	92	2.5	2.0	1550
MAY					
03...	0905	351	8.5	12.5	1560
JUN					
09...	0925	14	19.0	21.5	930
22...	1500	20	28.0	28.0	1760
JUL					
20...	1345	87	30.0	34.5	1200
AUG					
03...	0910	61	25.5	31.5	1380
SEP					
07...	1410	2.8	19.0	26.0	1400

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06464500 - KEYA PAHA R AT WEWELA SD (LAT 43 01 42 LONG 099 46 45)					
OCT , 1982					
21...	0915	98	1.0	-8.5	440
NOV					
09...	0845	78	--	-1.0	--
DEC					
22...	1250	61	2.5	15.0	530
JAN , 1983					
19...	1550	106	.0	.0	520
FEB					
24...	1210	99	5.0	3.0	450
MAR					
24...	1220	105	2.0	5.0	500
APR					
21...	1200	171	10.5	12.0	480
MAY					
19...	1150	242	13.5	22.5	550
JUN					
16...	1250	354	21.5	26.0	480
AUG					
25...	1135	50	25.0	30.0	490
06467500 - MISSOURI R AT YANKTON SD (LAT 42 51 58 LONG 097 23 37)					
OCT , 1982					
06...	1250	33900	15.0	7.5	370
NOV					
17...	1250	43000	4.0	11.0	580
DEC					
15...	0800	24600	1.5	-6.0	680
JAN , 1983					
12...	1630	24200	1.0	2.0	770
MAR					
02...	1645	23800	2.5	21.0	710
APR					
12...	1400	205000	5.0	3.0	740
MAY					
10...	1210	21600	14.0	18.0	730
JUN					
16...	1150	19200	20.0	23.0	800
JUL					
12...	1035	24500	25.0	28.5	680
AUG					
03...	1240	37700	26.0	33.0	790
24...	1040	38800	--	28.5	790
06471200 - MAPLE R AT ND-SD STATE LINE (LAT 45 56 20 LONG 098 27 08)					
NOV , 1982					
09...	1350	1.1	3.5	.5	970
DEC					
08...	1030	1.1	.0	-15.0	1000
JAN , 1983					
06...	1615	.38	1.0	2.5	1380
FEB					
08...	1605	.04	2.0	-.5	1720
MAR					
15...	1535	448	2.0	1.5	360
24...	0830	66	.5	.0	330
29...	1230	34	1.0	5.0	380
APR					
13...	1040	60	2.0	.0	450
MAY					
18...	0925	9.7	14.0	16.0	1000
JUN					
21...	1540	.71	27.0	30.0	1060
JUL					
13...	1230	.01	31.0	32.0	1140

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06471500 - ELM R AT WESTPORT SD (LAT 45 39 22 LONG 098 29 48)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
07...	1035	9.9	7.5	7.0	440
NOV					
09...	1035	6.8	2.0	1.5	500
DEC					
07...	1520	7.5	1.5	-5.0	570
JAN , 1983					
07...	1020	4.2	.0	-1.0	730
FEB					
09...	0920	3.7	1.0	-1.0	760
MAR					
10...	1555	927	2.0	9.0	710
15...	1215	555	2.0	1.0	360
24...	1030	130	.5	1.0	380
APR					
13...	1225	123	5.0	2.5	430
MAY					
18...	1105	17	13.0	21.0	830
JUN					
21...	1325	4.9	27.0	32.0	950
JUL					
13...	0900	3.9	23.0	25.0	1000
AUG					
25...	0845	3.6	27.5	24.0	650
SEP					
28...	0915	6.5	15.0	17.0	640

06473000 - JAMES R AT ASHTON SD (LAT 45 00 02 LONG 098 28 57)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
08...	1110	66	10.0	8.0	750
NOV					
08...	1620	145	3.0	4.0	500
DEC					
09...	1100	134	.0	-10.0	900
JAN , 1983					
07...	1400	32	.0	-1.0	1150
FEB					
09...	1625	6.2	1.0	-2.0	1660
MAR					
14...	1455	57	1.5	4.0	530
23...	1430	403	1.0	2.0	450
30...	1010	611	3.5	3.0	610
APR					
12...	1455	786	7.5	9.0	570
MAY					
19...	1115	600	16.0	23.0	650
JUN					
20...	1335	251	23.5	27.5	830
JUL					
14...	1010	104	28.0	31.0	930
AUG					
25...	1010	302	25.0	29.0	690
SEP					
29...	1125	135	15.0	12.0	700

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06475000 - JAMES R NEAR REDFIELD SD (LAT 44 54 33 LONG 098 27 34)					
OCT , 1982					
08...	1335	78	10.0	15.0	770
NOV					
08...	1245	144	4.0	7.0	710
DEC					
09...	1145	158	.0	-10.0	950
JAN , 1983					
10...	1110	28	.0	-2.0	1220
FEB					
10...	1105	3.4	1.0	.0	1360
MAR					
14...	1305	62	1.5	4.0	620
23...	1140	355	1.0	2.0	560
30...	1345	594	5.0	6.0	580
APR					
12...	1315	748	8.0	7.0	590
MAY					
19...	1435	641	15.0	23.0	640
JUN					
20...	1100	239	23.0	25.0	800
JUL					
14...	1415	136	29.0	34.5	740
AUG					
25...	1425	341	26.0	30.0	700
06476500 - SAND CR NEAR ALPENA SD (LAT 44 09 15 LONG 098 26 06)					
NOV , 1982					
15...	1105	1.1	1.0	2.0	1630
DEC					
23...	1005	.22	3.5	.5	2020
JAN , 1983					
19...	1510	.12	.5	-3.0	2640
FEB					
25...	1500	.70	7.0	4.0	1850
APR					
15...	0950	13	5.0	6.0	1320
29...	1335	6.1	12.5	11.5	1600
JUN					
09...	1625	1.1	24.0	29.0	1570
13...	1005	2.5	19.5	17.5	1700
JUL					
19...	1005	.55	26.5	29.5	1360
06477000 - JAMES R NEAR FORESTBURG SD (LAT 43 58 26 LONG 098 04 14)					
OCT , 1982					
05...	1150	101	16.0	20.0	1020
NOV					
05...	1100	143	1.5	1.0	840
DEC					
02...	1050	194	1.0	6.5	840
JAN , 1983					
11...	1135	86	1.0	-1.0	1060
FEB					
14...	1110	16	1.0	8.5	1460
MAR					
01...	1220	60	1.0	10.0	770
11...	0900	78	.0	-1.0	1160
APR					
21...	1200	878	9.0	13.0	760
MAY					
03...	1125	830	10.0	19.0	600
JUN					
07...	1055	388	18.0	22.5	750
JUL					
07...	1025	231	24.0	28.5	870
SEP					
16...	1125	228	15.5	20.0	690

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06477500 - FIRESTEEL CR NEAR MOUNT VERNON SD (LAT 43 46 30 LONG 098 14 33)					
OCT , 1982					
05...	1440	.10	19.0	23.0	2100
NOV					
19...	0840	4.8	2.0	5.0	470
DEC					
17...	1215	.78	1.0	2.0	1000
JAN , 1983					
14...	1050	1.4	.0	-1.5	1480
FEB					
09...	1515	.16	.0	-5.0	2260
MAR					
01...	1005	.85	.5	1.5	1100
11...	1200	6.0	1.5	-1.0	1160
APR					
14...	1505	34	2.5	3.0	1130
29...	1120	29	12.5	11.5	1130
JUL					
13...	1555	7.1	29.5	31.5	1800
AUG					
04...	1420	.32	34.0	35.0	1340
26...	1050	.03	1.0	29.5	1950
06478052 - ENEMY CR NEAR MITCHELL SD (LAT 43 38 33 LONG 097 59 09)					
NOV , 1982					
19...	1030	.37	4.0	7.0	1440
DEC					
17...	1030	.10	.0	-4.0	1930
JAN , 1983					
13...	1645	.69	1.0	4.5	1600
FEB					
09...	1400	.01	.0	-5.0	2540
18...	1040	1.1	.5	5.5	820
MAR					
10...	1445	12	--	-4.0	1730
APR					
14...	0805	66	.0	-5.0	1280
27...	1105	22	13.0	16.5	1640
JUN					
16...	1730	2.0	23.5	22.5	2250
21...	0930	305	24.5	28.0	740
JUL					
11...	1050	24	24.5	205	1400
AUG					
26...	0915	.04	26.5	28.0	2260
06478053 - PIERRE CREEK NR ALEXANDRIA SD (LAT 43 37 52 LONG 097 46 00)					
OCT , 1982					
06...	0910	4.7	12.0	12.0	2380
NOV					
19...	1215	7.6	3.5	7.5	2150
DEC					
17...	0830	2.4	.0	-4.0	2150
JAN , 1983					
14...	0835	5.3	.0	-7.0	2250
FEB					
09...	1250	2.8	1.0	-5.0	2390
22...	1150	12	1.0	6.0	1180
MAR					
10...	1250	9.3	1.0	-3.0	2100
APR					
14...	1220	19	1.0	.0	1950
27...	1250	6.4	13.0	20.0	2460
JUN					
16...	1550	5.3	22.5	25.0	2680
21...	1220	41	25.0	30.0	1530
JUL					
13...	1540	6.6	24.5	31.0	2360
AUG					
25...	1530	5.1	25.0	31.5	2530

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
06478320 - PLUM CREEK NR MILLTOWN SD (LAT 43 25 05 LONG 097 46 13)					
NOV , 1982					
16...	1210	6.7	.0	7.0	1160
JAN , 1983					
11...	1145	.17	.0	-9.0	550
FEB					
18...	1200	81	.0	10.0	900
24...	1000	19	.0	-2.0	840
MAR					
03...	1400	13	9.5	21.0	780
08...	1505	13	.0	-9.0	1340
APR					
14...	1030	32	.0	-5.0	1500
27...	1510	3.7	20.0	20.0	1520
JUN					
23...	1010	122	26.0	27.5	540
24...	1130	71	28.0	30.0	500
27...	1400	33	21.5	23.0	740
JUL					
11...	1430	4.4	28.0	26.5	1260
06478390 - WOLF CR NEAR CLAYTON SD (LAT 43 22 18 LONG 097 36 12)					
OCT , 1982					
05...	1325	2.0	16.0	23.0	1720
NOV					
16...	1415	46	.0	2.0	840
DEC					
14...	1230	14	.0	3.0	1310
JAN , 1983					
11...	1340	16	.0	-5.0	1900
FEB					
04...	1430	4.8	.0	-5.5	2210
18...	1400	179	.0	9.0	900
23...	1655	692	.5	4.5	400
MAR					
08...	1350	257	.0	-9.0	670
APR					
11...	1145	61	9.0	17.0	1360
27...	1735	56	13.0	17.0	1340
JUN					
14...	1310	15	20.0	25.0	1870
21...	1540	1340	27.0	30.0	340
22...	1615	498	28.0	29.0	500
24...	1315	201	28.0	35.0	520
27...	1620	115	21.5	20.0	940
JUL					
11...	1630	30	26.5	27.0	1380
AUG					
23...	1345	4.5	25.0	29.0	1980

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06478420 - LONETREE CREEK AT OLIVET SD (LAT 43 13 35 LONG 097 40 44)					
OCT , 1982					
05...	1500	.29	16.0	--	--
NOV					
16...	1550	17	.0	1.0	1230
DEC					
16...	1400	3.0	.0	.0	1570
JAN , 1983					
11...	1530	6.3	.0	-5.0	1880
FEB					
09...	1010	2.3	.0	-6.0	2450
18...	1530	251	.0	9.0	430
23...	1445	124	1.0	11.0	770
MAR					
01...	1620	59	3.5	5.0	--
09...	1020	57	.0	-10.0	1160
APR					
13...	1535	484	1.5	.0	--
28...	0945	11	13.0	15.0	1850
JUN					
14...	1710	3.9	19.5	23.0	1800
21...	1830	170	28.0	31.0	930
27...	1605	17	22.5	22.0	1400
JUL					
11...	1850	4.6	23.5	25.0	1700
AUG					
23...	1540	.41	24.5	31.0	1800
06478500 - JAMES R NEAR SCOTLAND SD (LAT 43 11 09 LONG 097 38 07)					
OCT , 1982					
05...	1645	104	17.0	25.0	740
NOV					
17...	1300	279	.5	--	1230
DEC					
27...	1415	170	.5	-3.0	1310
JAN , 1983					
27...	1600	90	.0	-3.0	1680
FEB					
24...	1530	--	1.0	--	610
MAR					
03...	1145	766	4.5	18.0	--
09...	1500	1130	.0	-5.0	940
APR					
02...	1600	2420	5.5	4.0	860
MAY					
03...	1600	2730	12.0	27.0	880
JUN					
08...	1050	501	21.0	28.0	930
27...	1720	1990	22.5	17.5	700
JUL					
21...	0955	692	29.0	30.0	860
AUG					
17...	1130	381	30.0	31.0	1420
SEP					
21...	1130	247	12.0	14.0	860

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06478513 - JAMES RIVER NR YANKTON SD (LAT 42 59 45 LONG 097 22 10)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
06...	1530	--	14.5	--	--
06...	1610	126	14.5	8.0	--
NOV					
17...	1550	463	1.5	11.0	--
DEC					
16...	0845	188	.0	-12.0	1060
JAN , 1983					
12...	1115	183	.0	-1.0	1480
FEB					
04...	1140	80	.0	-5.0	1530
26...	1505	1840	.0	6.0	620
MAR					
01...	1400	1710	1.5	5.0	820
02...	1120	1400	3.0	8.0	--
09...	1625	2080	1.0	-.5	840
APR					
13...	1100	1610	5.0	--	--
28...	1350	1400	15.0	17.0	1090
JUN					
15...	1505	460	23.5	26.5	1010
22...	1220	1880	25.0	28.5	--
28...	1005	2580	22.0	17.5	760
JUL					
13...	0935	466	26.5	30.5	1210
AUG					
25...	1145	359	26.0	27.5	1350

06478514 - BEAVER CREEK NR YANKTON SD (LAT 42 57 32 LONG 097 21 40)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
NOV , 1982					
18...	0835	12	1.5	.0	1350
DEC					
15...	1410	2.0	.0	-2.0	770
JAN , 1983					
12...	0925	.08	2.0	-2.0	1110
FEB					
08...	1645	.02	.0	-6.0	1290
21...	1020	297	.0	3.0	--
23...	0900	237	.0	.0	620
MAR					
01...	1000	158	1.5	.0	880
09...	1400	140	1.0	-1.0	990
APR					
12...	1400	111	4.5	3.0	1050
28...	1600	15	13.0	15.5	1320
MAY					
09...	1620	36	18.0	22.0	1070
JUN					
15...	1815	.03	245	28.0	1450
22...	0910	6.0	25.5	27.0	1530
28...	1005	15	19.5	19.0	1400
JUL					
12...	1815	.07	28.5	35.0	1650
AUG					
25...	0900	.19	19.0	23.5	1000

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (UMHOS) (00095)
06478540 - LITTLE VERMILLION R NEAR SALEM SD (LAT 43 47 39 LONG 097 22 02)					
NOV , 1982					
08...	1210	1.3	2.5	3.5	710
DEC					
02...	1650	12	4.5	7.0	730
JAN , 1983					
19...	1300	1.0	.0	-6.0	1500
FEB					
14...	1430	.19	1.0	4.5	1710
17...	1720	14	--	1.5	--
21...	1625	151	.0	4.0	230
24...	1510	103	.0	-2.0	280
MAR					
02...	1105	37	.0	2.5	470
04...	1240	75	7.0	10.5	430
10...	1100	93	.0	-4.0	520
16...	1045	42	2.0	.5	590
23...	1605	14	2.5	3.5	840
APR					
12...	1050	16	5.0	1.0	960
27...	1455	13	16.0	13.0	930
MAY					
03...	1400	41	11.5	20.0	1040
JUN					
07...	1230	.20	20.0	22.0	1290
JUL					
07...	1425	22	26.0	31.5	680
06478690 - WEST FORK VERMILLION R NEAR PARKER SD (LAT 43 24 55 LONG 097 12 18)					
OCT , 1982					
06...	1305	1.5	14.0	9.5	1300
NOV					
08...	1410	11	5.0	5.0	1550
DEC					
02...	1410	62	6.0	12.0	1300
JAN , 1983					
19...	0930	9.7	.0	-6.5	2200
FEB					
15...	0905	6.1	.5	.5	2140
21...	1430	929	.0	4.0	--
24...	1205	921	.0	-4.0	330
MAR					
02...	1345	607	1.5	6.0	530
10...	0800	440	.0	-12.0	640
16...	1330	343	1.0	.5	770
APR					
12...	1320	127	6.0	1.0	1230
MAY					
03...	1425	570	10.0	21.0	910
JUN					
07...	1455	6.5	20.5	26.0	1620
21...	1355	1570	25.5	30.5	450
JUL					
07...	1705	100	26.0	32.0	970
AUG					
18...	1100	3.0	24.0	26.0	910
SEP					
15...	0925	.70	13.5	17.0	810

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06479000 - VERMILLION R NEAR WAKONDA SD (LAT 42 59 27 LONG 096 57 49)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
07...	1140	11	14.0	12.0	900
NOV					
18...	1235	573	.0	4.0	980
DEC					
14...	1630	177	.0	-1.0	1440
JAN , 1983					
13...	1340	75	.0	.5	1710
FEB					
08...	1325	49	.0	-6.0	1160
23...	1200	1290	.0	5.0	780
25...	1745	1980	.0	1.0	650
MAR					
01...	1250	2880	2.5	14.0	720
02...	1630	3120	4.5	19.0	700
03...	1700	3320	6.5	17.5	740
09...	0915	1450	.5	-5.0	780
18...	1355	2260	3.0	1.0	950
22...	1500	1560	3.5	2.0	860
APR					
02...	1030	1560	5.0	2.0	880
11...	1500	1260	3.0	5.0	--
20...	1150	2750	7.5	12.0	970
MAY					
09...	1415	1620	14.0	22.0	1180
JUN					
15...	1130	221	19.5	23.0	1660
22...	1020	3060	25.0	28.0	510
28...	1545	4860	21.0	20.0	600
30...	1245	4030	21.0	25.0	650
JUL					
05...	1755	1820	24.5	29.0	950
12...	1700	698	25.0	32.5	1080
19...	1750	870	--	--	780
AUG					
24...	1535	68	24.0	25.0	1280

06479438 - BIG SIOUX R NEAR WATERTOWN SD (LAT 45 00 22 LONG 097 09 53)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
06...	1140	.03	11.5	6.0	560
DEC					
07...	1100	1.4	.0	-10.0	610
JAN , 1983					
05...	1150	.11	.0	3.0	710
FEB					
08...	1120	.08	1.0	-10.0	620
26...	1045	.36	.0	1.0	540
MAR					
08...	1605	1.4	.5	-8.0	330
APR					
14...	1140	31	1.0	.5	380
MAY					
17...	1150	12	15.0	23.0	610
JUN					
22...	1125	1.4	24.0	23.0	480
JUL					
12...	1605	1.7	24.0	31.0	480
AUG					
24...	0930	.24	21.5	22.5	520
SEP					
27...	1045	.19	15.0	21.5	510

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06479515 - WILLOW CR NEAR WATERTOWN SD (LAT 44 54 17 LONG 097 03 31)					
OCT , 1982					
06...	0950	.31	11.5	6.5	1140
NOV					
05...	0925	.38	.5	-4.0	1160
DEC					
07...	0815	.52	.0	-12.0	1000
JAN , 1983					
05...	0900	.29	.0	-3.0	1600
FEB					
08...	0915	.12	1.0	-12.0	2230
MAR					
09...	1455	5.1	.5	.5	520
APR					
14...	1410	14	3.0	1.0	680
MAY					
17...	0915	3.5	14.0	15.0	880
JUN					
22...	1405	.62	28.0	28.0	940
JUL					
12...	1205	.01	25.5	29.0	1040
AUG					
23...	1530	.04	27.5	28.5	1260
SEP					
27...	0855	.14	13.5	15.0	1200
06479525 - BIG SIOUX R NEAR CASTLEWOOD SD (LAT 44 43 54 LONG 097 02 39)					
OCT , 1982					
05...	1555	7.0	16.0	18.0	710
NOV					
04...	1630	4.9	.5	-3.5	1000
DEC					
06...	1430	10	--	-1.0	940
JAN , 1983					
04...	1555	2.5	.0	3.0	1380
FEB					
07...	1655	.41	1.0	-8.0	950
25...	1600	11	.0	-3.0	750
MAR					
09...	1200	25	.5	-3.0	760
APR					
15...	0930	32	1.0	7.0	780
MAY					
16...	1535	24	19.0	22.0	1100
JUN					
23...	0930	3.8	20.0	24.0	800
JUL					
12...	0950	3.0	19.0	25.5	1080
AUG					
23...	1340	1.9	23.0	30.0	830
SEP					
26...	1445	3.7	22.0	27.0	970

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06479529 - STRAY HORSE CR NEAR CASTLEWOOD SD (LAT 44 43 52 LONG 096 57 23)					
OCT , 1982					
05...	1435	.50	14.0	16.0	1040
NOV					
04...	1350	.88	.5	-2.0	1000
DEC					
06...	1310	.89	.0	.0	910
JAN , 1983					
04...	1400	.31	.0	4.0	1360
FEB					
07...	1500	.04	1.0	-1.0	1730
25...	1340	6.1	.0	-6.0	500
MAR					
09...	0945	11	.5	-5.0	670
APR					
15...	1105	15	2.5	8.5	810
MAY					
16...	1330	4.8	14.0	15.0	1020
JUN					
23...	1040	.69	24.0	24.0	980
JUL					
11...	1650	.17	28.0	25.0	970
AUG					
23...	1205	.04	22.0	27.0	940
SEP					
26...	1320	.35	19.0	26.5	950
06479640 - HIDEWOOD CR NEAR ESTELLINE SD (LAT 44 36 42 LONG 096 54 17)					
OCT , 1982					
05...	1255	1.1	13.0	18.0	1120
NOV					
04...	1220	2.0	.5	-2.0	1090
DEC					
06...	1125	8.6	.0	3.5	820
JAN , 1983					
04...	1205	2.3	.0	3.0	1120
FEB					
07...	1250	1.1	1.5	1.5	1260
25...	1140	16	.0	-6.0	460
MAR					
03...	1610	32	1.0	12.0	550
08...	1220	26	.5	-5.0	690
APR					
15...	1230	51	2.5	1.0	750
MAY					
16...	1150	31	12.0	18.0	860
JUN					
23...	1300	8.9	25.0	31.0	1020
JUL					
11...	1435	2.9	24.5	23.5	930
AUG					
23...	1100	.09	22.0	21.5	940
SEP					
26...	1130	.07	17.0	22.0	1000

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06479980 - MEDARY CREEK NEAR BROOKINGS, SD (LAT 44 13 27 LONG 096 46 06)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
08...	1315	30	10.0	15.0	760
NOV					
16...	1315	46	3.0	3.5	690
30...	1155	57	1.0	4.0	900
JAN , 1983					
18...	1140	16	.0	14.0	870
FEB					
17...	0935	13	.5	3.5	700
22...	1320	213	.0	6.0	350
28...	1635	180	1.0	4.5	460
MAR					
03...	0950	761	3.0	18.0	340
14...	1435	279	1.0	3.0	830
APR					
12...	1135	182	5.0	1.0	950
MAY					
05...	1135	148	14.0	21.0	860
JUN					
09...	0735	25	17.0	15.0	740
JUL					
07...	1750	79	21.0	33.5	830
AUG					
15...	1500	5.5	28.0	32.5	570
SEP					
13...	1140	3.6	16.0	18.0	640

06480000 - BIG SIOUX RIVER NEAR BROOKINGS SD (LAT 44 10 48 LONG 096 44 55)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
08...	1025	88	11.0	11.0	770
NOV					
10...	1105	121	4.0	2.0	740
30...	1505	193	2.0	6.0	960
JAN , 1983					
18...	1430	51	.0	--	1000
FEB					
17...	1255	50	1.0	2.0	900
28...	1420	859	2.0	7.5	520
MAR					
03...	1315	2150	2.0	19.0	460
14...	1640	1120	2.0	2.0	780
APR					
12...	1610	813	5.5	2.0	840
MAY					
05...	0945	553	13.5	14.5	910
JUN					
08...	1715	97	22.0	27.5	840
JUL					
07...	1535	276	24.0	32.0	930
AUG					
15...	1830	18	30.0	32.0	670
SEP					
13...	1310	16	17.0	19.5	700

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06480400	- SPRING CREEK NEAR FLANDREAU SD (LAT 44 07 18 LONG 096 35 19)				
OCT , 1982					
15...	1100	18	10.0	13.0	710
NOV					
10...	0930	27	2.0	2.5	530
30...	1705	13	.5	2.0	840
JAN , 1983					
18...	1635	4.3	.0	--	840
FEB					
16...	1500	7.4	1.0	6.0	680
20...	1320	65	.0	-1.0	340
22...	1515	130	1.0	7.0	340
MAR					
01...	1255	733	2.0	10.5	270
02...	1525	257	2.0	12.5	270
04...	0950	132	3.5	9.5	460
09...	0915	16	.5	-10.0	610
15...	0915	59	.0	-2.0	660
APR					
18...	1225	97	5.0	4.0	600
MAY					
04...	1705	36	16.0	19.0	700
JUN					
08...	1550	6.1	22.5	28.5	600
JUL					
07...	1400	21	23.5	30.0	740
AUG					
16...	1245	4.3	27.5	29.0	620
SEP					
13...	1440	6.2	14.0	20.5	650
06480650	- FLANDREAU CREEK ABOVE FLANDREAU SD (LAT 44 03 45 LONG 096 29 14)				
OCT , 1982					
08...	0830	41	10.0	10.0	690
NOV					
09...	1635	12	2.5	2.5	730
DEC					
01...	0915	31	.5	5.0	880
JAN , 1983					
13...	1245	8.3	1.0	3.0	930
FEB					
16...	1320	5.6	.5	10.0	840
20...	1130	113	.0	-2.0	310
22...	1725	206	.0	8.5	320
MAR					
02...	1030	845	1.5	8.0	250
04...	1230	246	1.0	11.0	430
15...	1115	107	.0	-2.0	--
APR					
12...	1635	98	3.5	1.0	720
MAY					
04...	1515	109	14.5	17.0	640
JUN					
08...	1410	13	21.0	26.0	710
JUL					
07...	1140	54	22.0	26.5	800
AUG					
16...	0810	3.9	24.0	28.0	620
SEP					
13...	1645	3.8	16.5	17.5	860

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06481500 - SKUNK CR AT SIOUX FALLS SD (LAT 43 32 01 LONG 096 47 26)					
OCT , 1982					
06...	1545	156	15.0	11.0	1060
NOV					
09...	0900	87	3.0	3.0	880
DEC					
01...	1615	250	2.0	8.0	1240
JAN , 1983					
12...	1555	51	1.0	5.0	1320
FEB					
15...	1120	30	.5	2.5	1200
23...	1035	1170	.0	.0	520
MAR					
02...	1705	137C	--	8.0	680
16...	1640	473	1.5	.0	910
APR					
12...	1640	797	3.5	2.0	1180
27...	0855	532	14.0	11.0	1290
MAY					
03...	1830	128C	10.5	19.0	1040
JUN					
07...	1700	90	22.0	25.0	1540
JUL					
08...	0925	166	23.0	27.0	1300
AUG					
18...	0755	24	24.0	23.0	1260
SEP					
14...	1435	12	16.0	21.0	880
06482020 - BIG SIOUX R AT NORTH CLIFF AVE AT SIOUX FALLS SD (LAT 43 34 01 LONG 096 42 39)					
OCT , 1982					
07...	1720	423	14.0	21.0	880
NOV					
09...	1130	311	3.0	3.0	770
DEC					
02...	1115	1010	5.5	9.5	1160
JAN , 1983					
12...	1310	200	2.0	6.0	1240
FEB					
15...	1330	127	1.5	3.5	1340
23...	1335	2370	--	.0	570
24...	0850	2610	.0	.0	--
MAR					
03...	1640	5510	1.5	18.0	480
16...	1040	2560	1.5	.0	850
APR					
14...	1530	2510	3.5	1.0	990
19...	0925	3860	6.5	6.0	990
27...	1205	2210	14.0	19.0	880
MAY					
04...	0950	2640	11.0	9.0	1060
JUN					
08...	1000	324	19.0	21.0	1170
JUL					
08...	1225	1100	24.5	30.0	940
AUG					
17...	1505	106	30.0	34.0	1120
SEP					
14...	1245	69	17.5	22.0	1000

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
06482610 - SPLIT ROCK CR AT CORSON SD (LAT 43 36 39 LONG 096 33 34)					
OCT , 1982					
07...	1300	158	12.0	14.0	550
NOV					
09...	1425	67	3.0	4.0	680
DEC					
01...	1200	148	1.0	9.5	860
JAN , 1983					
12...	1020	35	1.0	-1.0	810
FEB					
16...	0950	38	.5	3.0	800
23...	1605	1050	.0	.0	--
MAR					
03...	1305	2320	2.0	19.5	310
16...	1240	400	1.5	1.0	700
APR					
14...	1235	471	1.5	-1.0	610
MAY					
04...	1150	899	10.5	13.0	720
JUN					
08...	1125	62	20.0	26.0	620
JUL					
08...	1605	280	25.5	30.5	760
AUG					
17...	1715	27	31.5	33.0	550
SEP					
14...	1120	22	16.0	16.0	610
06482848 - BEAVER CREEK AT CANTON SD (LAT 43 17 12 LONG 096 35 46)					
OCT , 1982					
29...	1000	36	7.5	8.5	1420
NOV					
19...	0850	136	2.0	8.0	1200
JAN , 1983					
26...	1130	6.3	.0	-15.0	2300
FEB					
20...	1610	61	.0	.0	920
23...	0945	140	.5	.5	740
25...	1350	191	.0	-1.5	840
28...	1415	556	1.5	15.5	750
MAR					
01...	1700	775	5.5	8.5	700
03...	1305	497	9.0	21.5	810
17...	1030	115	2.0	.0	1330
24...	1410	62	6.0	6.5	1670
APR					
01...	1430	888	3.0	15.0	740
13...	1015	907	2.0	2.0	640
19...	1215	296	7.5	9.0	1050
MAY					
05...	0855	209	14.0	15.0	1140
JUN					
06...	1600	9.4	18.0	31.0	2000
21...	1805	981	26.5	30.0	--
23...	1150	586	26.0	27.0	800
27...	1320	167	21.5	21.0	1240
JUL					
05...	1410	76	23.5	27.0	1440
21...	1735	20	30.0	35.5	1550
SEP					
19...	1645	6.5	13.0	13.0	1970

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

06485696 - BRULE CREEK NR ELK POINT SD (LAT 42 48 32 LONG 096 41 11)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)
OCT , 1982					
27...	1210	30	9.0	14.5	930
NOV					
18...	0925	41	1.5	3.5	1050
JAN , 1983					
27...	1035	12	.0	-13.0	980
FEB					
20...	1825	42	.0	-2.0	680
24...	1015	196	1.0	1.0	640
26...	1040	104	.0	4.0	790
MAR					
01...	0850	456	.5	2.5	610
02...	0845	423	--	5.5	720
03...	0855	374	4.5	14.0	840
04...	0910	292	8.0	12.5	960
08...	1735	311	.0	-5.0	800
17...	1815	216	2.5	.0	1050
23...	1535	82	5.5	10.0	1230
APR					
01...	1745	803	5.0	4.0	700
13...	1330	1410	3.5	4.0	640
19...	1745	241	7.0	5.5	1020
MAY					
04...	1200	204	13.0	10.5	1010
JUN					
07...	1405	33	18.5	15.5	870
22...	1435	1140	25.5	28.5	500
27...	1725	2230	22.0	23.0	440
28...	1005	6230	20.0	20.5	310
29...	1150	3730	19.0	18.0	350
JUL					
06...	0920	216	21.5	24.0	930
20...	1440	79	29.0	33.0	890
SEP					
20...	0940	14	11.5	7.0	1040

The following miscellaneous tables of water-quality data were retrieved from STORET for a network of surface water quality stations. The water samples were collected by USGS personnel and analyzed by the U.S. Army Corps of Engineers in Omaha, Nebraska.

CHEYENNE RIVER BASIN

COLD BROOK RESERVOIR AT HOT SPRINGS, SD (LAT 43 27 19 LONG 103 29 19)

	INITIAL DATE			82/10/27	82/10/27	82/10/27	82/10/27	82/10/27	82/10/27	82/10/27	82/10/27
	INITIAL TIME-DEPTH-BOTTOM			1030 0000	1030 0001	1030 0003	1030 0009	1030 0016	1030 0022	1030 0029	1030 0032
00010	WATER	TEMP	CENT	11.4	11.2	11.2	11.0	10.9	10.9	10.8	10.8
00011	WATER	TEMP	FAHN	52.5	52.2	52.2	51.8	51.6	51.6	51.4	51.4
00020	AIR	TEMP	CENT	16.5							
00032	CLOUD	COVER	PERCENT	90							
00035	WIND	VELOCITY	MPH	15.0							
00036	WIND	DIR.FROM	NORTH-C	315							
00078	TRANSP	SECCHI	METERS	8.00							
00094	CNDUCTVY	FIELD	MICROMHO	688	688	688	687	688	688	688	688
00299	DO	PROBE	MG/L	10.6	10.2	9.9	9.6	9.3	9.1	9.1	9.0
00301	DO	SATUR	PERCENT	95.5	91.9	89.2	86.5	83.8	82.0	82.0	81.1
00400	PH		SU	7.90	7.90	7.90	7.80	7.90	7.80	7.80	7.80

	INITIAL DATE			82/10/27	83/02/15	83/02/15	83/02/15	83/02/15	83/02/15	83/02/15	83/02/15
	INITIAL TIME-DEPTH-BOTTOM			1030 0005	1415 0000	1415 0001	1415 0003	1415 0009	1415 0016	1415 0022	1415 0029
	FINAL DATE			82/10/27							
	FINAL TIME-NUMBER OF SAMPLES			1130 G							
	CP-SPACE OR TIME-STATISTICAL FUNC			CP-S							
00010	WATER	TEMP	CENT		3.2	4.7	4.6	4.6	4.4	4.2	4.2
00011	WATER	TEMP	FAHN		37.8	40.5	40.3	40.3	39.9	39.6	39.6
00032	CLOUD	COVER	PERCENT		0						
00035	WIND	VELOCITY	MPH		3.0						
00036	WIND	DIR.FROM	NORTH-C		225						
00076	TURB	TRBIDMTR	HACH FTU	5.0							
00078	TRANSP	SECCHI	METERS		10.30						
00094	CNDUCTVY	FIELD	MICROMHO		610	674	678	688	692	696	698
00299	DO	PROBE	MG/L		14.0	14.4	14.4	14.2	14.0	13.5	13.0
00301	DO	SATUR	PERCENT		103.7	112.5	112.5	110.9	106.9	103.1	99.2
00400	PH		SU		8.40	8.30	8.20	8.20	8.20	8.20	8.20
00410	T ALK	CACO3	MG/L	200							
00515	RESIDUE	DISS-105	C MG/L	464							
00530	RESIDUE	TOT NFLT	MG/L	6							
00610	NH3+NH4-	N TOTAL	MG/L	0.080							
00615	NO2-N	TOTAL	MG/L	0.000							
00619	UN-IONZD	NH3-NH3	MG/L	0.000							
00620	NO3-N	TOTAL	MG/L	0.110							
00625	TOT KJEL	N	MG/L	0.600							
00665	PHOS-TOT		MG/L P	0.030							
00900	TOT HARD	CACO3	MG/L	330							
00945	SULFATE	SO4-TOT	MG/L	160							
01045	IRON	FE,TOT	UG/L	79							
01055	MANGNESE	MN	UG/L	15.0							
70507	PHOS-T	ORTHO	MG/L P	0.010							

	INITIAL DATE			83/02/15	83/02/15	83/04/26	83/04/26	83/04/26	83/04/26	83/04/26	83/04/26
	INITIAL TIME-DEPTH-BOTTOM			1415 0033	1415 0005	1330 0000	1330 0001	1330 0003	1330 0009	1330 0016	1330 0022
	FINAL DATE				83/02/15						
	FINAL TIME-NUMBER OF SAMPLES				1445 G						
	CP-SPACE OR TIME-STATISTICAL FUNC				CP-S						
00010	WATER	TEMP	CENT	4.5		12.3	12.2	12.1	12.0	11.6	8.6
00011	WATER	TEMP	FAHN	40.1		54.1	54.0	53.8	53.6	52.9	47.5
00020	AIR	TEMP	CENT			18.0					
00032	CLOUD	COVER	PERCENT			50					
00035	WIND	VELOCITY	MPH			20.0					
00036	WIND	DIR.FROM	NORTH-C			0					
00076	TURB	TRBIDMTR	HACH FTU		2.0						
00078	TRANSP	SECCHI	METERS			8.23					
00094	CNDUCTVY	FIELD	MICROMHO	707		628	628	628	627	627	623
00299	DO	PROBE	MG/L	10.3		11.3	11.1	11.0	11.0	11.4	12.6
00301	DO	SATUR	PERCENT	80.5		104.6	102.8	101.9	101.9	105.6	108.6
00400	PH		SU	8.20		8.70	8.70	8.70	8.60	8.50	8.60
00410	T ALK	CACO3	MG/L		173						
00515	RESIDUE	DISS-105	C MG/L		342						
00610	NH3+NH4-	N TOTAL	MG/L		0.000						
00615	NO2-N	TOTAL	MG/L		0.000						
00619	UN-IONZD	NH3-NH3	MG/L		0.000						
00620	NO3-N	TOTAL	MG/L		0.120						
00625	TOT KJEL	N	MG/L		0.000						
00665	PHOS-TOT		MG/L P		0.000						
00900	TOT HARD	CACO3	MG/L		271						
01045	IRON	FE,TOT	UG/L		16						
01055	MANGNESE	MN	UG/L		8.0						
70507	PHOS-T	ORTHO	MG/L P		0.000						

MISCELLANEOUS WATER QUALITY DATA

CHEYENNE RIVER BASIN

COLD BROOK RESERVOIR AT HOT SPRINGS, SD (LAT 43 27 19 LONG 103 29 19)--Continued

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      INITIAL DATE                         83/04/26  83/04/26  83/04/26  83/07/07  83/07/07  83/07/07  83/07/07  83/07/07
      INITIAL TIME-DEPTH-BOTTOM            1330 0029 1330 0036 1330 0005 1130 0000 1130 0001 1130 0003 1130 0009 1130 0016
      FINAL DATE                                               83/04/26
      FINAL TIME-NUMBER OF SAMPLES                             1500 G
      CP-SPACE OR TIME-STATISTICAL FUNC                        CP-S
00010  WATER      TEMP       CENT           8.2       8.2                23.7      23.4      23.1      22.9      22.2
00011  WATER      TEMP       FAHN          46.8      46.8                74.7      74.1      73.6      73.2      72.0
00020   AIR       TEMP       CENT                                        33.5
00032  CLOUD      COVER     PERCENT                                        30
00035   WIND     VELOCITY    MPH                                         10.0
00078  TRANSP     SECCHI    METERS                                      10.36
00094 CNDUCTVY   FIELD     MICROMHO         623       623                 526       526       525       525       527
00299    DO       PROBE      MG/L          12.5      12.2                10.9      10.7      10.7      10.8      11.0
00301    DO       SATUR     PERCENT       105.0     102.5               128.2     123.0     123.0     124.1     125.0
00400    PH                   SU           8.60      8.50                8.40      8.40      8.40      8.40      8.3C
00410  T ALK     CACO3       MG/L                               187
00515 RESIDUE    DISS-105  C MG/L                               388
00530 RESIDUE    TOT NFLT    MG/L                                18
00610 NH3+NH4-   N TOTAL     MG/L                             0.000
00615  NO2-N      TOTAL      MG/L                             0.000
00619 UN-IONZD   NH3-NH3     MG/L                             0.000
00620  NO3-N      TOTAL      MG/L                             0.000
00625 TOT KJEL      N        MG/L                             0.040
00665 PHOS-TOT               MG/L P                           0.000
00900 TOT HARD   CACO3       MG/L                               329
00945 SULFATE    SO4-TOT     MG/L                               132
01045   IRON     FE,TOT      UG/L                                87
01055 MANGNESE      MN       UG/L                               0.0
39516   PCBS     WHL SMPL    UG/L                             1.000 K
70507  PHOS-T     ORTHO      MG/L P                           0.000
      INITIAL DATE                         83/07/07  83/07/07  83/07/07  83/07/07
      INITIAL TIME-DEPTH-BOTTOM            1130 0022 1130 0029 1130 0036 1130 0005
      FINAL DATE                                                         83/07/07
      FINAL TIME-NUMBER OF SAMPLES                                       1200 G
      CP-SPACE OR TIME-STATISTICAL FUNC                                  CP-S
00010  WATER       TEMP      CENT          20.4      17.2      15.9
00011  WATER       TEMP      FAHN          68.7      63.0      60.6
00094 CNDUCTVY   FIELD     MICROMHO         545       578       594
00299    DO       PROBE      MG/L          18.5      11.2       4.9
00301    DO       SATUR     PERCENT       201.1     115.5      49.0
00400    PH                   SU           8.10      8.20      7.90
00410  T ALK     CACO3       MG/L                                         136
00515 RESIDUE    DISS-105  C MG/L                                         380
00610 NH3+NH4-   N TOTAL     MG/L                                       0.050
00615  NO2-N      TOTAL      MG/L                                       0.000
00619 UN-IONZD   NH3-NH3     MG/L                                       0.000
00620  NO3-N      TOTAL      MG/L                                       0.000
00625 TOT KJEL      N        MG/L                                       0.200
00665 PHOS-TOT               MG/L P                                     0.000
00900 TOT HARD   CACO3       MG/L                                         243
00916 CALCIUM    CA-TOT      MG/L                                        50.0
00927 MGNSIUM    MG,TOT      MG/L                                        29.0
00929 SODIUM     NA,TOT      MG/L                                       17.80
00937 PTSSIUM    K,TOT       MG/L                                        3.10
00940 CHLORIDE    TOTAL      MG/L                                          20
01002 ARSENIC    AS,TOT      UG/L                                           4
01007 BARIUM     BA,TOT      UG/L                                          39
01012 BERYLIUM   BE,TOT      UG/L                                        0.00
01022 BORON      B,TOT       UG/L                                          47
01027 CADMIUM    CD,TOT      UG/L                                           2
01034 CHROMIUM   CR,TOT      UG/L                                           7
01042 COPPER     CU,TOT      UG/L                                           2
01045   IRON     FE,TOT      UG/L                                          42
01051 LEAD       PB,TOT      UG/L                                           0
01055 MANGNESE      MN       UG/L                                         4.0
01067  NICKEL    NI,TOTAL    UG/L                                           4
01077 SILVER     AG,TOT      UG/L                                         0.0
01092 ZINC       ZN,TOT      UG/L                                          14
01097 ANTIMONY   SB,TOT      UG/L                                           0
01147 SELENIUM   SE,TOT      UG/L                                           1
70507  PHOS-T     ORTHO      MG/L P                                     0.000
71900 MERCURY    HG,TOTAL    UG/L                                         0.0
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The following water-quality data is for lagoons at Eros Data Center. The water samples were collected by USGS personnel and analyzed by the USGS laboratory in Denver, Colorado.

STATION NUMBER	LOCAL IDENTIFIER	DATE OF SAMPLE	TIME	GEOLOGIC UNIT	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
MINNEHAHA									
434415096371501	LAGOON #1 AT EROS DATA C	82-11-02	1520	--	2880	8.3	10.5	320	65
		83-06-28	1025	--	3280	7.6	22.0	400	81
434415096371502	LAGOON #2 AT EROS DATA C	82-11-02	1330	--	2050	9.1	9.5	310	54
		83-06-28	1200	--	3400	8.2	20.0	320	78
434415096371503	LAGOON #3 AT EROS DATA C	82-11-02	1445	--	2690	8.2	9.5	290	52
		83-06-28	1250	--	2350	8.3	13.0	180	68
434415096371504	LAGOON #4 AT EROS DATA C	82-11-03	0930	--	2700	8.4	5.0	290	20
		83-06-28	1330	--	2350	9.0	20.0	200	75

STATION NUMBER	DATE OF SAMPLE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)
MINNEHAHA											
434415096371501	82-11-02	42	610	69	10	48	450	550	1.0	9.7	<.250
	83-06-28	51	510	71	11	32	560	710	.90	9.1	.110
434415096371502	82-11-02	40	420	71	10	44	440	600	1.1	7.1	<.250
	83-06-28	49	450	64	10	30	480	640	1.0	7.6	.110
434415096371503	82-11-02	39	420	69	10	33	400	610	1.0	9.0	<.250
	83-06-28	43	390	69	9	25	310	490	.90	5.3	.130
434415096371504	82-11-03	40	420	69	10	36	410	620	1.1	9.0	<.250
	83-06-28	42	360	68	9	28	310	490	1.0	5.4	.150

STATION NUMBER	DATE OF SAMPLE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	BORON, DISSOLVED (UG/L AS B) (01020)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	IRON, DISSOLVED (UG/L AS FE) (01046)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
MINNEHAHA										
434415096371501	82-11-02	12	1500	2.2	7.50	40	2300	50	2500	1.4
	83-06-28	14	2000	2.7	7.20	70	1900	20	960	.1
434415096371502	82-11-02	13	1500	2.2	7.40	40	2100	30	1900	.3
	83-06-28	13	1800	2.4	1.00	20	1800	<10	350	.2
434415096371503	82-11-02	4.9	1600	2.2	1.70	20	1800	20	240	.4
	83-06-28	12	1400	2.0	<.100	<10	1500	<10	60	.2
434415096371504	82-11-03	2.5	1700	2.3	1.20	20	1900	20	190	.3
	83-06-28	<1.1	--	--	<.100	20	1600	<10	30	.1

STATION NUMBER	DATE OF SAMPLE	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
MINNEHAHA				
434415096371501	82-11-02	11	110	1.1
	83-06-28	5	140	.47
434415096371502	82-11-02	6	100	.85
	83-06-28	<1	60	.14
434415096371503	82-11-02	1	50	.11
	83-06-28	<1	110	.02
434415096371504	82-11-03	1	50	.07
	83-06-28	<1	10	<.01

< Less than.

MISCELLANEOUS WATER QUALITY DATA

The following water-quality data is for Choteau Creek at Wagner, Choteau Creek near Dante, and Lake Andes near Lake Andes, South Dakota. The water samples were collected by USGS personnel and analyzed by the USGS laboratory in Denver, Colorado.

STATION NUMBER	DATE OF SAMPLE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
					CHARLES MIX						
06453200	83-06-29	1400	20	1500	7.4	19.5	650	400	140	72	95
	83-07-20	0900	39	1220	7.5	27.0	530	160	120	55	69
	83-08-02	1430	20	1160	7.8	29.0	450	95	97	51	75
	83-08-18	0955	5.8	1280	7.7	25.5	510	120	110	57	75
	83-09-08	0915	.10	--	7.4	19.5	610	120	130	70	100
430132098100300	83-06-28	1730	16	1900	7.6	19.5	670	620	190	97	120
	83-07-20	1130	54	1140	7.4	28.5	470	170	110	47	60
	83-08-03	1200	36	960	7.7	29.0	430	130	96	46	70
	83-08-18	0745	11	1460	7.9	25.0	560	130	120	63	100
	83-09-07	1600	.31	--	7.4	21.5	770	340	170	83	120
	83-09-22	0845	.15	2010	8.3	8.5	960	620	230	93	84
431010098273500	83-06-29	1515	.00	1650	7.4	20.0	760	630	210	58	56
	83-07-19	1230	.00	1630	8.3	29.0	780	620	210	61	61
	83-08-02	1145	.00	1670	7.6	27.0	770	600	210	60	61
	83-08-18	1145	.00	1850	7.7	27.5	780	610	210	62	63
	83-09-08	1445	.00	--	7.6	23.5	900	740	240	74	77
	83-09-22	1145	.00	2120	8.3	10.0	910	730	240	75	80

STATION NUMBER	DATE OF SAMPLE	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)
					CHARLES MIX						
06453200	83-06-29	24	2	13	248	550	35	.10	23	1100	1.5
	83-07-20	21	1	23	366	300	27	.20	44	860	1.1
	83-08-02	25	2	26	358	270	29	.20	27	790	1.1
	83-08-18	23	1	25	392	290	23	.20	33	850	1.1
	83-09-08	25	2	37	494	320	39	.20	42	1000	1.4
430132098100300	83-06-28	22	2	21	258	780	50	.30	21	1400	2.0
	83-07-20	21	1	23	300	280	29	.10	36	770	1.0
	83-08-03	25	2	20	304	300	35	.20	20	770	1.1
	83-08-18	27	2	26	431	350	39	.30	18	980	1.3
	83-09-07	25	2	30	430	520	39	.20	15	1200	1.7
	83-09-22	16	1	20	334	840	29	.30	15	1500	2.1
431010098273500	83-06-29	13	.9	55	136	710	32	.60	13	1200	1.7
	83-07-19	13	1	59	159	700	37	.70	19	1200	1.7
	83-08-02	13	1	64	169	780	39	.70	19	1300	1.8
	83-08-18	14	1	75	168	770	43	.80	23	1400	1.8
	83-09-08	14	1	81	166	910	46	.70	24	1600	2.1
	83-09-22	15	1	90	183	900	49	.80	10	1600	2.1

STATION NUMBER	DATE OF SAMPLE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)
			CHARLES MIX				
06453200	83-06-29	56	<.100	1.60	1.50	1.20	3.7
	83-07-20	91	<.100	1.40	1.40	1.00	3.1
	83-08-02	43	<.100	1.20	1.20	1.20	3.7
	83-09-18	13	<.100	1.20	1.10	1.20	3.7
	83-09-08	.28	<.100	1.80	1.70	1.60	4.9
430132098100300	83-06-28	62	.140	.930	.800	.760	2.3
	83-07-20	112	.100	2.00	.930	.860	2.6
	83-08-03	75	<.100	1.30	.910	.880	2.7
	83-08-18	29	.130	.920	.570	.460	1.4
	83-09-07	1.0	.130	.510	.200	.160	.49
	83-09-22	.61	<.100	.250	.060	.060	.18
431010098273500	83-06-29	.00	<.100	.680	.650	.580	1.8
	83-07-19	.00	.130	1.10	.710	.620	1.9
	83-08-02	.00	<.100	.830	.760	.700	2.1
	83-08-18	.00	<.100	1.00	.850	.780	2.4
	83-09-08	.00	<.100	.960	.910	.800	2.5
	83-09-22	.00	<.100	.680	.690	.560	1.7

< Less than.

The ground-water observation well network in South Dakota is used to monitor quantitative and at times qualitative changes in the glacial and bedrock aquifers. Federal, state, and local agencies monitor approximately 2,000 wells throughout the state. The seven wells included in this report are a sample of the South Dakota observation well network. All measurements are in feet above or below land-surface datum. Well 442112098174001 and well 453312098244401 tap glacial aquifers and are monitored with digital recorders. The other six wells are bedrock wells. Of these, well 432015103535801 is measured annually with a steel tape, well 443515103513901 is monitored by a pressure recorder, and wells 435039098263403, 431619096460202, and 454745097450401 are monitored with digital recorders.

AURORA COUNTY

435039098263403.
LOCATION.--Lat 43°50'39", long 98°26'34", in SW¼SW¼SW¼NW¼ sec.6, T.104 N., R.63 W., Hydrologic Unit 10160011, 8.5 mi north-northeast of Plankinton.
Owner: South Dakota Department of Water and Natural Resources.
AQUIFER.--Niobrara.
WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 134 ft, perforated 114 to 134 ft.
DATUM.--Land-surface datum is 1,418 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.0 ft above land-surface datum.
PERIOD OF RECORD.--April 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 55.44 ft below land-surface datum, June 30, 1983, lowest, 96.44 ft below land-surface datum, July 25, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	57.17	56.79	57.21	57.06	57.04	55.71	55.86	55.52	55.71	55.58	57.20	59.76
10	57.02	56.67	57.31	56.98	57.00	56.12	55.73	55.67	55.74	55.51	58.31	60.45
15	57.06	57.32	57.24	57.19	57.13	56.03	55.67	55.58	55.71	55.53	59.07	60.30
20	56.97	57.30	57.18	57.04	57.14	55.98	55.58	55.53	55.61	55.54	59.57	59.03
25	56.84	57.34	57.22	57.08	57.08	55.92	55.55	55.67	55.63	55.62	59.50	58.42
EOM	56.74	57.13	57.11	57.07	55.85	55.73	55.60	55.64	55.44	56.74	59.33	58.11
MAX	57.33	57.40	57.44	57.20	57.14	56.12	55.86	55.68	55.74	56.74	59.78	60.79
MIN	56.72	56.63	57.08	56.90	55.84	55.69	55.55	55.48	55.44	55.45	56.23	58.11

WTR YR 1983 HIGH 55.44 JUN 30 LOW 60.79 SEP 13

NOTE: Instantaneous observations are the maximum depths below land surface.

BEADLE COUNTY

442112098174001.
LOCATION.--Lat 44°21'12", long 98°17'40", in SW¼SW¼SW¼NW¼ sec.9, T.110 N., R.62 W., Hydrologic Unit 10160006, at southwest corner of city well field, 3.5 mi west of Huron.
Owner: City of Huron.
AQUIFER.--Glacial Outwash.
WELL CHARACTERISTICS.--Drilled unused public supply artesian well, diameter 12 in, depth 74 ft, perforated 38 to 74 ft.
DATUM.--Land-surface datum is 1,306.93 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of platform 2.00 ft above land-surface datum.
PERIOD OF RECORD.--February 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 10.81 ft below land-surface datum, Feb. 5, 1954, lowest, 50.23 ft below land-surface datum, Dec. 5, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	40.73	40.30	40.10	39.44	46.47	44.67	36.24	35.86	38.99	38.63	42.16	43.74
10	40.66	40.28	40.12	39.40	47.51	38.97	36.37	36.23	39.11	38.63	42.51	43.28
15	40.58	40.04	39.78	39.59	48.03	37.50	36.06	35.98	39.30	39.40	43.18	42.74
20	40.68	40.25	39.53	39.45	48.24	37.00	35.77	38.66	39.06	39.42	43.79	42.29
25	40.32	40.18	39.64	39.24	45.18	36.76	35.64	38.56	39.08	40.38	44.24	41.87
EOM	40.36	39.51	39.68	39.22	44.99	36.19	36.29	38.34	38.73	41.41	44.29	41.58
MAX	41.07	40.46	40.29	39.65	48.57	44.98	41.00	39.73	39.41	41.41	44.30	44.26
MIN	40.23	39.51	39.42	39.03	42.54	36.19	35.59	35.74	38.29	38.61	41.41	41.58

WTR YR 1983 HIGH 35.59 APR 26 LOW 48.57 FEB 21

NOTE: Instantaneous observations are the maximum depths below land surface.

BROWN COUNTY

453312098244401.
LOCATION.--Lat 45°33'12", long 98°24'44", in NW¼NW¼NW¼SW¼ sec.15, T.124 N., R.63 W., Hydrologic Unit 10160004, 1.5 mi south of Ordway.
Owner: Bureau of Reclamation.
AQUIFER.--Elm.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in, depth 38 ft, perforated 6 to 38 ft.
DATUM.--Land-surface datum is 1,304.14 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder platform 3.10 ft above land-surface datum.
PERIOD OF RECORD.--August 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.35 ft below land-surface datum, Apr. 15, 1969, lowest, 10.87 ft below land-surface datum, Mar. 15, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.96	8.05	8.20	8.30	8.40	8.46	7.73	7.73	7.22	7.40	7.65	7.99
10	8.71	8.09	8.23	8.33	8.40	8.06	7.73	7.73	7.37	7.49	---	8.12
15	8.03	8.12	8.24	8.40	8.46	7.81	7.73	7.73	7.40	7.65	---	8.17
20	7.94	8.16	8.25	8.38	8.52	7.78	7.73	6.75	7.40	7.65	---	8.27
25	7.93	8.19	8.30	8.39	8.50	7.73	7.73	6.92	7.40	7.65	7.83	8.34
EOM	7.99	8.13	8.29	8.40	8.49	7.73	7.73	7.06	7.40	7.65	7.91	8.41
MAX	9.01	8.21	8.30	8.40	8.52	8.49	7.73	7.77	7.40	7.65	7.91	8.61
MIN	7.92	8.00	8.14	8.28	8.39	7.73	7.73	6.75	7.08	7.40	7.65	7.92

WTR YR 1983 HIGH 6.75 MAY 19 AND OTHERS LOW 9.01 OCT 1

NOTE: Instantaneous observations are the maximum depths below land surface.

FALL RIVER COUNTY

432015103535801.
LOCATION.--Lat 43°20'15", long 103°53'58", in SW¼SW¼NE¼SE¼ sec.20, T.8 S., R.2 E., Hydrologic Unit 10120106, 5 mi northwest of Edgemont.
Owner: D. Heldman.
AQUIFER.--Lakota.
WELL CHARACTERISTICS.--Drilled artesian stock well, diameter 5 in, depth 410 ft.
DATUM.--Land-surface datum is 3,532 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 0.60 ft above land-surface datum.
PERIOD OF RECORD.--September 1956 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 23.29 ft below land-surface datum, Mar. 1, 1957, lowest, 38.65 ft below land-surface datum, Apr. 26, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

APR 26, 1983 38.65.

LAWRENCE COUNTY

443515103513901.
LOCATION.--Lat 44°35'15", long 103°51'39", in SE¼NE¼NW¼ sec.10, T.7 N., R.2 E., Hydrologic Unit 10120203, 4.5 mi north of Spearfish.
Owner: South Dakota Department of Water and Natural Resources.
AQUIFER.--Minnelusa.
WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 5 in, depth 1,306 ft, perforated 1,226 to 1,306 ft.
DATUM.--Land-surface datum is 3,205 ft National Geodetic Vertical Datum of 1929. Measuring point: Base of gage 2.5 ft above land-surface datum.
PERIOD OF RECORD.--April 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 302.80 ft above land-surface datum, Apr. 30, 1977, lowest, 258.40 ft above land-surface datum, Aug. 10, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 05, 1982	278.00	JAN 10, 1983	285.50	APR 10, 1983	286.00	JUL 10, 1983	278.00
10	278.00	15	286.00	15	286.00	15	274.00
15	280.30	20	284.90	20	286.60	20	274.00
20	280.90	25	286.00	25	288.40	25	272.20
25	281.50	31	285.50	30	287.20	31	270.00
31	281.50	FEB 05	286.00	MAY 05	286.60	AUG 05	272.20
NOV 05	281.50	10	284.90	10	289.00	10	271.10
10	281.50	15	286.00	15	287.20	15	271.10
15	281.50	20	285.50	20	288.40	20	270.50
20	282.60	25	284.90	25	290.70	25	271.10
25	281.50	28	283.80	31	290.10	31	272.20
30	283.80	MAR 05	284.90	JUN 05	288.40	SEP 05	276.80
DEC 05	284.91	10	281.50	10	286.10	10	274.50
10	282.60	15	283.20	15	286.10	15	276.30
15	282.60	20	283.20	20	286.10	20	274.00
20	284.90	25	284.30	25	282.60	25	280.90
25	284.90	31	285.50	30	282.60	30	283.20
JAN 05, 1983	286.00	APR 05	285.50	JUL 05	279.10		

NOTE: Instantaneous observations are minimum height above land surface.

LINCOLN COUNTY

431619096460202.
LOCATION.--Lat 43°16'19", long 96°46'02", in NE¼NE¼NE¼NE¼ sec.32, T.98 N., R.50 W., Hydrologic Unit 10170102, 4 mi south of Worthing.
Owner: South Dakota Department of Water and Natural Resources.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 383 ft, screened 363 to 383 ft.
DATUM.--Land-surface datum is 1,320 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder platform 3.0 ft above land-surface datum.
PERIOD OF RECORD.--August 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 150.70 ft below land-surface datum, Oct. 31, 1979, lowest, 154.04 ft below land-surface datum, Sept. 23, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	153.74			---	153.79	153.48	153.66	153.56	153.75	---	153.13	153.37
10	---			---	153.79	153.75	153.55	153.58	153.80	---	153.17	153.54
15	---			---	153.78	153.62	153.57	153.69	153.75	---	153.25	153.59
20	---			---	153.89	153.59	153.54	153.66	153.67	---	153.31	153.99
25	---			---	153.57	153.60	153.58	153.75	---	153.19	153.39	153.96
EOM	---			153.63	153.60	153.41	153.65	153.68	---	153.07	153.45	153.61
MAX	153.90			153.65	153.89	153.75	153.66	153.75	153.81	153.21	153.45	154.04
MIN	153.70			153.61	153.57	153.41	153.42	153.48	153.67	153.01	153.06	153.37

WTR YR 1983 HIGH 153.01 JUL 28 LOW 154.04 SEP 23

NOTE: Instantaneous observations are the maximum depths below land surface.

MARSHALL COUNTY

454745097450401.
LOCATION.--Lat 45°47'45", long 97°45'04", in SE¼NE¼SE¼ sec.23, T.127 N., R.58 W., Hydrologic Unit 09020105, within city limits of Britton.
Owner: City of Britton.
AQUIFER.--Dakota Sandstone.
WELL CHARACTERISTICS.--Drilled unused public supply artesian well, diameter 8 in, depth 1,060 ft.
DATUM.--Land-surface datum is 1,360 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder platform 2.50 ft above land-surface datum.
PERIOD OF RECORD.--July 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 37.18 ft below land-surface datum, lowest, 59.32 ft below land-surface datum.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	43.94	43.83	43.72	43.66	43.71	43.37	43.62	43.56	43.85	44.05	44.27	
10	43.78	43.76	43.94	43.59	43.67	43.58	43.52	43.74	43.97	44.08	44.58	
15	43.92	43.76	43.86	43.89	43.59	43.52	43.56	43.72	43.90	44.40	44.35	
20	43.90	43.71	43.73	43.71	43.68	43.53	43.51	43.67	43.91	44.08	44.14	
25	43.84	43.85	43.84	43.80	43.63	43.52	43.46	43.78	44.08	44.25	---	
EOM	43.75	43.58	43.74	43.72	43.54	43.37	43.64	43.74	43.91	44.34	---	
MAX	44.10	43.90	44.08	43.89	43.71	43.59	43.64	43.83	44.21	44.40	44.59	
MIN	43.60	43.57	43.56	43.53	43.47	43.33	43.46	43.56	43.74	43.84	44.10	

WTR YR 1983 HIGH 43.33 MAR 6 LOW 44.59 AUG 11

NOTE: Instantaneous observations are the maximum depths below land surface.

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^{2})
	4.047×10^{-1}	square hectometers (hm^{2})
	4.047×10^{-3}	square kilometers (km^{2})
square miles (mi^{2})	2.590×10^{0}	square kilometers (km^{2})
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^{3})
	3.785×10^{-3}	cubic meters (m^{3})
million gallons	3.785×10^{3}	cubic meters (m^{3})
	3.785×10^{-3}	cubic hectometers (hm^{3})
cubic feet (ft^{3})	2.832×10^{1}	cubic decimeters (dm^{3})
	2.832×10^{-2}	cubic meters (m^{3})
cfs-days	2.447×10^{3}	cubic meters (m^{3})
	2.447×10^{-3}	cubic hectometers (hm^{3})
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^{3})
	1.233×10^{-3}	cubic hectometers (hm^{3})
	1.233×10^{-6}	cubic kilometers (km^{3})
	Flow	
cubic feet per second (ft^{3}/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^{3}/s)
	2.832×10^{-2}	cubic meters per second (m^{3}/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^{3}/s)
	6.309×10^{-5}	cubic meters per second (m^{3}/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^{3}/s)
	4.381×10^{-2}	cubic meters per second (m^{3}/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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